Thesis/
Reports
Arnold
J.R

SIERRA NATIONAL FOREST: CROSS-VALIDATION USER PREFERENCE STUDY FINAL REPORT

AD-33 Bookplate
(1-61)
U. S. FOREST SERVICE
NATIONAL Ft. Collins, Colo
AGRICULTURAL
LIBRARY
LIBRARY COPY
ROCKY MT. FOREST & RANGE
EXPERIMENT STATION

REVIEW DRAFT

Final Report

Sierra National Forest: Cross-Valiation User Preference Study

Submitted as required by

Cooperative Agreement No. 16-841-CA

between

Colorado State University

and

Rocky Mountain Forest and Range Experiment Station

by

J. Ross Arnold, Research Associate

Department of Recreation Resources

Colorado State University

and

Steve Nachtman and Lynn Udick

Research Assistants

Fort Collins, Colorado

February, 1981

LIBRARY COPY
ROCKY MT. FOREST & RANGE
EXPERIMENT STATION

TABLE OF CONTENTS

	Page
LIST OF TABLES	iv
LIST OF FIGURES	xi
LIST OF APPENDICES	xii
Chapter	
I. INTRODUCTION	1
Problem	1
Study Objectives	1
Study Area	2
Study Population	3
II. METHODS	6
Exit Interview	6
Interviewing Procedures	7
Sampling Design	8
Questionnaire	10
Analysis	10
Mailed Questionnaires	11
Mail Questionnaire Content	11
Winter	14
Summer	16
Data Collection	17
Analysis	17
Analysis of User Characteristics and Preferences	17
Comparative Analysis	20
III. CHARACTERISTICS AND PREFERENCES OF WINTER USERS	24
Mail Questionnaire Response	24
Sample Summary Statistics	28
Characteristics of Visitors to the SNF	28
Recreation Activities of SNF Users	30
Recreation Experience Preferences (REP's)	34
REP Differences Between User Groups	40
Management Action Preferences	45
SNF Recreation Users' Management Action Preferences	45
Preferences of Recreationists from Selected Activity Groups	47
Opinions of Users Residing in Different Areas of California	49
Specific Management Actions Directed to Only Cross-Country Skiers and Snowmobilers	53

Page

Management Actions Preferred by Users Recreating in Specific Areas 57
Zones (Areas) of Recreation Participation 57
Differences on Management Actions by Area of Recreation Participation 57

IV. CHARACTERISTICS AND PREFERENCES OF SUMMER USERS 65
Mail Questionnaire Response 65
Sample Summary Statistics 69
Characteristics of Visitors to the SNF 69
Recreation Activities of SNF Users 71
Recreation Experience Preferences (REP's) 81
Overall REP's of Summer SNF Users 81
REP Differences Between User Groups 83
User Opinions about Management Actions and Conditions in the SNF 89
Overall Summary of Management Action Preferences 90
Preferences of Recreationists from Selected Subgroups of the Summer Users 93
Wilderness Users' Preferences for Wilderness Management Actions 96
User Opinions Concerning General Conditions of the SNF . . 98
User Preferences for Party Limitations in Selected SNF Environments 101
Recommendations from the John Muir Wilderness Users . . 103
Recommendations from Kaiser Wilderness Users 105
Social and Ecological Conditions of Selected SNF Environments 107
Opinions of John Muir Wilderness Users 110
Opinions of Kaiser Wilderness Users 112

V. COMPARISON OF RECREATION EXPERIENCE PREFERENCES OF SNF USERS TO USERS OF PREVIOUSLY STUDIED AREAS 114
REP Mean Comparisons 114
Winter Comparisons 115
Differences Between Cross-Country Skiers 116
Differences Between Downhill Skiers 116
Overall Winter Comparison 119
Summer Comparisons 119
Differences Between Hikers 120
Differences Between Campers Away From Automobile (remote campers) 122
Differences Between Campers Near the Automobile (car campers) 124
Differences Between Fishermen 126
Differences Between Hikers (importance format) 126
Differences Between Campers Near the Automobile (importance format) 129
Differences Between Fishermen (importance format) . . . 129
Overall Summer Comparison 132
Correlation Coefficient Comparisons 136
Structural Consistency of REP Scales and Domains 136

Page

VI. PILOT STUDY OF THE ELEMENTS OF THE RECREATION OPPORTUNITY SPECTRUM SYSTEM 138
Winter Recreation Opportunity Spectrum Questions 138
ROS Characteristics of the Recreation Environment 139
Comparisons of the Recreation Opportunity Spectrum Characteristics by Zone 142
People's Preferences for Recreation Opportunity Spectrum Settings and Characteristics 146
Summer Recreation Opportunity Spectrum Questions 151

VII. PILOT STUDY OF THE RELATIONSHIP BETWEEN RECREATION EXPERIENCE PREFERENCES AND CONDITIONS OF HOME AND WORK ENVIRONMENTS 155

VIII. SUMMARY AND DISCUSSION 160
Overall Recreation Experience Preferences of SNF Users . . 160
Recreation Experience Preference Comparisons 163
Management Actions and Conditions of the Sierra National Forest 164

. . . . . .

REFERENCES 168

LIST OF TABLES

		Page
1.	Outline of the questions contained on the four questionnaires used to solicit preferences of selected Sierra National Forest recreationists (Winter/Summer)	15
2.	Response to the Sierra National Forest Questionnaire mailings (Winter, 1979)	25
3.	Comparison of the actual to the expected percentage of Sierra users responding to the mail questionnaire categorized by activity groups (Winter, 1979)	27
4.	Age, sex, education, and size of place of permanent residence of respondents sampled in the Sierra National Forest (Winter, 1979)	29
5.	Residence locations of respondents sampled in the Sierra National Forest (Winter, 1979)	31
6.	Number of previous winter/spring visits to the Sierra National Forest of respondents sampled (Winter, 1979)	32
7.	Number of respondents sampled indicating participation in specific activities in the Sierra National Forest (Winter, 1979)	33
8.	The most important activity of the respondents sampled in the Sierra National Forest (Winter, 1979)	35
9.	Percentage of recreationists in each most important group by their total number of previous winter/spring visits, for respondents sampled in the Sierra National Forest (Winter, 1979)	36
10.	Recreation experience preferences domain and scale (offset to the right) means for those respondents sampled in the Sierra National Forest using the "adds to - detracts from satisfaction" response format (Winter, 1979)	39
11.	Recreation experience preference domain (D) and scale (S) (offset to the right) means for those respondents sampled in the Sierra National Forest using the "adds to - detracts from satisfaction" response format, grouped by their most important activity (Winter, 1979)	41

Page

12. Recreation experience preference scales showing signficant differences between mean responses of groups based on residence of respondents sampled in the Sierra National Forest (Winter, 1979) 44

13. Management item means and standard deviations for all respondents sampled in the Sierra National Forest (Winter, 1979) 46

14. Preferences for possible management actions of respondents sampled in the Sierra National Forest (Winter, 1979) 48

15. Management items showing significant differences between mean responses of groups based on most important activity of respondents sampled in the Sierra National Forest (Winter, 1979) 50

16. Management items showing significant differences between mean responses of snow-related recreation groups based on most important activity of respondents sampled in the Sierra National Forest (Winter, 1979) 51

17. Management items showing significant differences between mean responses of groups based on residence of respondents sampled in the Sierra National Forest (Winter, 1979) 52

18. Means and standard deviations for management items directed only to cross-country skiers and snowmobilers sampled in the Sierra National Forest (Winter, 1979) 54

19. Preferences for possible management actions directed only to snowmobilers and cross-country skiers sampled in the Sierra National Forest (Winter, 1979) 55

20. Significant differences between group means on management actions directed only to cross-country skiers and snowmobilers sampled in the Sierra National Forest (Winter, 1979) 56

21. Number of sampled respondents indicating each zone as the area where they engaged in their most important activity in the Sierra National Forest (Winter, 1979) 59

22. Number of respondents participating in each most important activity within each zone of the Sierra National Forest (Winter, 1979) 60

23. Management items showing significant differences between mean responses of groups based on zone in which respondents engaged in their most important activity in the Sierra National Forest (Winter, 1979) 61

Page

24. Management items showing significant differences between mean responses of groups of cross-country skiers in Zones 4 and 5 respectively, sampled in the Sierra National Forest (Winter, 1979) 63

25. Management items showing significant differences between groups of fishermen in zones 3 and 4 respectively sampled in the Sierra National Forest (Winter, 1979) 64

26. Results of the Sierra National Forest Questionnaire mailings (Summer, 1979) 66

27. Comparison of the actual to the expected percentage of Sierra users responding to the mail questionnaire categorized by activity groups (Summer, 1979) 68

28. Age, sex, education, size of place of permanent residence and cultural backgrounds of respondents sampled in the Sierra National Forest (Summer, 1979) 70

29. Residence locations of respondents sampled in the Sierra National Forest (Summer, 1979) 72

30. Number of previous summer visits to the Sierra National Forest of respondents sampled (Summer, 1979) 73

31. Summer Sierra National Forest user response to the question, "Have you visited the John Muir Wilderness Area during the past five years?" Respondents sampled in the Sierra National Forest (Summer, 1979) 74

32. Summer Sierra National Forest user response to the question, "Have you visited the Kaiser Wilderness Area during the past five years?" Respondents sampled in the Sierra National Forest (Summer, 1979) 75

33. Number of respondents sampled indicating participation in specific activities in the Sierra National Forest (Summer, 1979) 77

34. The most important activity of the respondents sampled in the Sierra National Forest (Summer, 1979) 78

35. Percentage of recreationists in each most important activity group by their total number of previous summer visits, for respondents sampled in the Sierra National Forest (Summer, 1979) 79

36. Percentage of summer Sierra National Forest user response to question, "Have you visited the John Muir and/or the Kaiser Wilderness Areas during the past five years?" Question responses were grouped by the most important activity of respondents sampled in the Sierra National Forest (Summer, 1979) 80

Page

37. Recreation experience preference domain and scale (offset to the right) means for those respondents sampled in the Sierra National Forest using the "adds to - detracts from satisfaction" response format (Summer, 1979) 82

38. Recreation experience preference domain (D) and scale (S) (offset to the right) means for those respondents sampled in the Sierra National Forest using the "adds to - detracts from satisfaction" response format, grouped by their most important activity (Summer, 1979) 84

39. Recreation experience preference scales showing significant differences between mean responses of groups based on residence of respondents sampled in the Sierra National Forest (Summer, 1979) 88

40. Management item means and standard deviations for all respondents sampled in the Sierra National Forest (Summer, 1979) . . 91

41. Preferences for possible management actions of the respondents sampled in the Sierra National Forest (Summer, 1979) 92

42. Management items showing significant differences between mean responses of groups based on most important activity of respondents sampled in the Sierra National Forest (Summer, 1979) 94

43. Management items showing significant differences between mean responses of groups based on residence of respondents sampled in the Sierra National Forest (Summer, 1979) 95

44. Management items showing significant differences between mean responses of groups based on number of previous visits for respondents sampled in the Sierra National Forest (Summer, 1979) 97

45. Management items showing significant differences between mean responses of groups based on whether or not they have visited the John Muir Wilderness Area (Summer, 1979) 99

46. Means and standard deviations on statements regarding the sampled respondents' visits to the Sierra National Forest (Summer, 1979) 100

47. Respondents' indications of the maximum limits for specific party (group) requirements in areas of the Sierra National Forest (Summer, 1979) 102

48. John Muir Wilderness users' indications of the maximum limits for specific party (group) requirements in the John Muir Wilderness. Respondents were sampled in the Sierra National Forest (Summer, 1979) 104

Page

49. Kaiser Wilderness users' indications of the maximum limits for specific party (group) requirements in the Kaiser Wilderness. Respondents were sampled in the Sierra National Forest (Summer, 1979) 106

50. Respondents' indication of the social and ecological conditions of specific areas in the Sierra National Forest (Summer, 1979) 108

51. Response to the social and ecological conditions of selected areas by respondents sampled in the Sierra National Forest, grouped by their most important activity (Summer, 1979) 109

52. John Muir Wilderness users' indications of the social and ecological conditions of the John Muir Wilderness. Respondents were sampled in the Sierra National Forest (Summer, 1979) 111

53. Kaiser Wilderness users' indications of the social and ecological conditions of the Kaiser Wilderness. Respondents were sampled in the Sierra National Forest (Summer, 1979) . . 113

54. Comparisons of REP scale means (adds-detracts format) for cross-country skiers sampled in the Sierra National Forest (Winter, 1979) to cross-country skiers sampled in previous studies 117

55. Comparison of REP scale means (importance format) for downhill skiers sampled in the Sierra National Forest (Winter, 1979) to downhill skiers sampled in previous studies 118

56. Comparison of REP scale means (adds-detracts format) for hikers sampled in the Sierra National Forest (Summer, 1979) to hikers sampled in previous studies 121

57. Comparison of REP scale means (adds-detracts format) for campers away from the automobile (remote campers) sampled in the Sierra National Forest (Summer, 1979) to remote campers sampled in previous studies 123

58. Comparison of REP scale means (adds-detracts format) for campers near the automobile (car campers) sampled in the Sierra National Forest (Summer, 1979) to car campers sampled in previous studies 125

59. Comparison of REP scale means (adds-detracts format) for fishermen sampled in the Sierra National Forest (Summer, 1979) to fishermen sampled in previous studies 127

Page

60. Comparison of REP scale means (importance format) for hikers sampled in the Sierra National Forest (Summer, 1979) to hikers sampled in Northeastern Pennsylvania 128

61. Comparison of REP scale means (importance format) for campers near the automobile (car campers) sampled in the Sierra National Forest (Summer, 1979) to car campers sampled in previous studies 130

62. Comparison of REP scale means (importance format) for fishermen sampled in the Sierra National Forest (Summer, 1979) to fishermen sampled in previous studies 131

63. Respondents' perceptions of the characteristics of the area they engaged in their most important activity in the Sierra National Forest (Winter, 1979) 140

64. Means and standard deviations for respondents' perceptions of the area where they engaged in their most important activity in the Sierra National Forest (Winter, 1979) 141

65. Significant differences between respondents' perceptions of the characteristics of the area where they recreated. Respondents were grouped by their most important activity in the Sierra National Forest (Winter, 1979) 143

66. Significant differences between respondents' perceptions of the characteristics of the area where they recreated. Respondents were grouped by the zone (area) where they recreated in the Sierra National Forest (Winter, 1979) 145

67. Significant differences between cross-country skiers in zones 4 and 5 based on their perceptions of the characteristics of their respective zones. Respondents sampled in the Sierra National Forest (Winter, 1979) 147

68. Recreation setting preference means for all respondents sampled in the Sierra National Forest (Winter, 1979) 149

69. Significant differences between the setting preferences of respondents belonging to specific most important activity groups. Respondents were sampled in the Sierra National Forest (Winter, 1979) 150

70. Degree or level of specific ROS characteristics most preferred by respondents sampled in the Sierra National Forest, grouped by their most important activity (Summer, 1979) . . . 153

71. Neighborhood condition item means and standard deviations for all respondents sampled in the Sierra National Forest (Summer, 1979) 156

Page

72. Work condition item means and standard deviations for all respondents sampled in the Sierra National Forest (Summer, 1979) 158

73. Neighborhood and work condition items showing significant differences between mean responses of groups based on most important activity of respondents sampled in the Sierra National Forest (Summer, 1979) 159

LIST OF FIGURES

		Page
1.	Study Area Map	4
2.	Study Area (Interview Locations)	5
3.	Use Zones	58
4.	Use Zones	144

LIST OF APPENDICES

A. Sierra National Forest Questionnaires (Winter/Summer, 1979)

B. Winter Recreation Experience Preferences

C. Winter Management Action Preferences

D. Summer Recreation Experience Preferences

E. Summer SNF Management Action and Condition Preferences

F. Correlation and Reliability Analyses

G. Recreation Opportunity Spectrum Opinions (Winter and Summer)

H. Summary of SNF Use Data

I. Recreation Experience Preferences of Bass Lake Users

I. INTRODUCTION

Problem

Growing demands for all the uses of the public lands and requirements of the Renewable Resources Planning Act of 1974 and the National Forest Management Act of 1976 have focused attention on the needs for better ways of inventorying and managing the nation's national forests. Special attention has been focused on obtaining better measures of the volumes and trends in recreation participation, recreation users' preferences, and assessment of the adverse impacts of recreational use on the resource base.

This study is part of a long-term and comprehensive joint research effort by the Rocky Mountain Forest and Range Experiment Station (RMS) and Colorado State University (CSU). The research focuses on identifying and quantifying user preferences for specific recreation opportunities in wilderness, backcountry, and other dispersed recreation environments. A major goal of this research has been to explore the similarities and differences in the expected and desired experiences sought by recreationists in different parts of the country visiting similar wildland areas.

Study Objectives

The specific objectives of the study were:

1. To replicate a procedure developed by Driver and Brown in Colorado to identify and quantify the recreation related preferences of recreation users in a part of the Sierra National Forest.

2. To compare the recreation preferences of users of the study area in the Sierra National Forest with those of similar users in other locations studied in the past.
3. To identify the experiential and demographic characteristics of users of the study area.
4. To identify the management preferences of Sierra National Forest users and determine how those preferences vary between recreationists participating in different activities.
5. To provide further empirical support for the Recreation Opportunity Spectrum (ROS) system on national forest lands by pilot testing questions for exploring the linkages between recreation activities, settings, and experiences.
6. To describe winter and summer recreation use of the study area.
7. To explore relationships between urban living and recreation preferences.

Study Area

A part of the Sierra National Forest (SNF) was selected as the study site for the research. The forest is located just south of Yosemite National Park approximately 50 miles east of Fresno in central California. The study centered on the Huntington Lake area, and the study area was bordered on the north by Yosemite and the Inyo National Forest; by the Inyo and Kings Canyon National Park on the east; and by Sequoia National Forest to the south. The western boundary of the study area followed a line north from Pine Flat Reservoir through Auberry and Northfork to Bass Lake. Within this area, the research focused primarily on those recreationists who exited the study area via State Highway 168 near Shaver Lake and the Dinky Creek road south of

Shaver Lake. Therefore, most of the research effort was concentrated in the Pineridge and Kings River Ranger Districts.

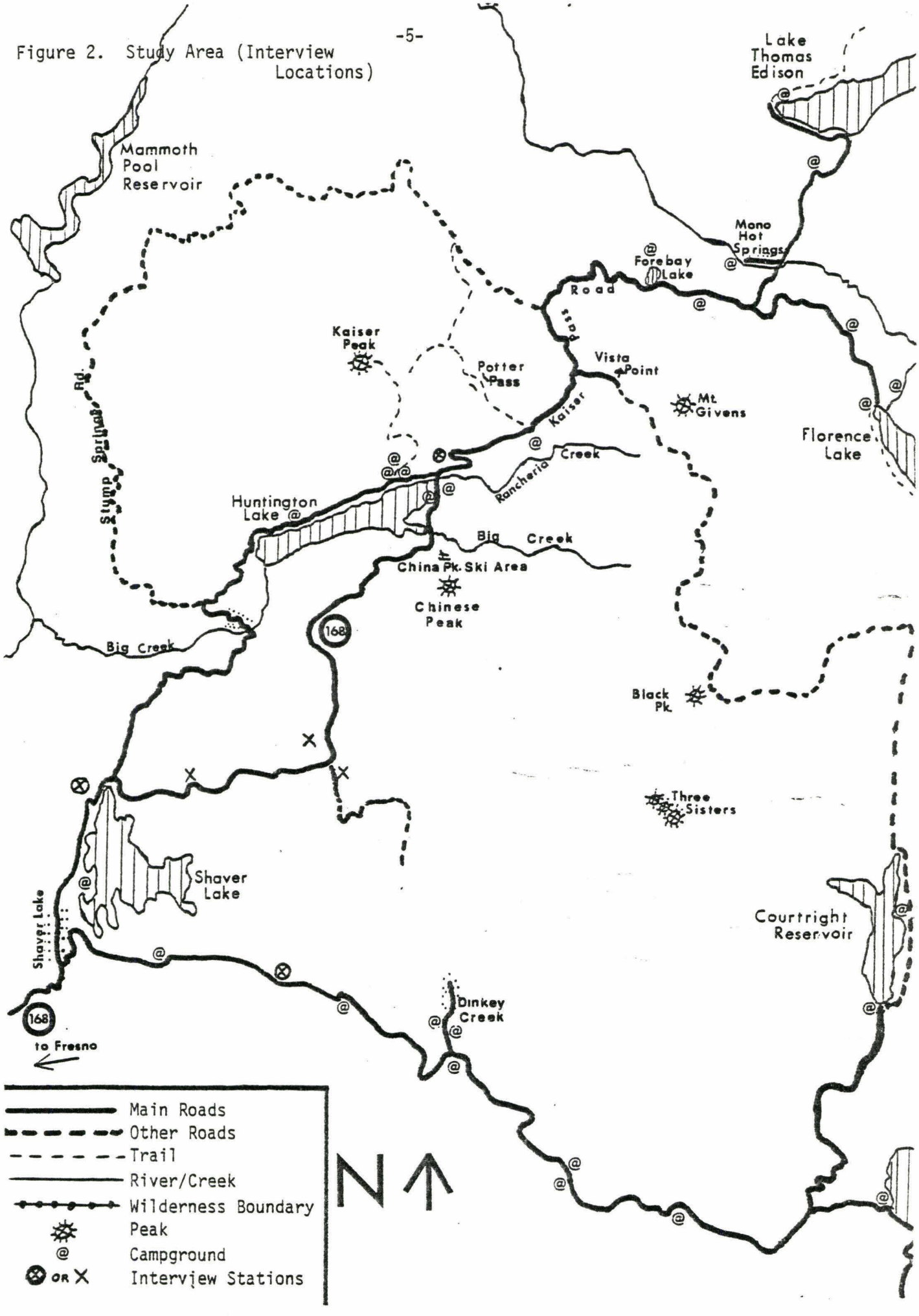
Figure 1 shows a map of the study area. With input from USFS managers, the study area was divided into zones (1-28) which facilitated the calculation of use statistics and the determination of the distribution and types of recreation use. Figure 2 depicts a portion of Figure 1 in a larger scale to better identify the location of the interview stations. The areas designated by an "X" were used as interview areas for the winter research. The summer interview stations are represented as circles. An "X" with a circle around it designates an interview site that was used for both the winter and summer field research. Further description of the interviewing procedures will be presented in the following section.

Study Population

The target population for the study consisted of all SNF recreationists exiting the study area via the sampled roads or trails during the sampling period. The sampling period for the winter/spring (hereafter referred to as just winter) study was from the middle of February to the beginning of May in 1979. The beginning of June initiated the summer sampling period which lasted until September 1979.

Figure 1. Study Area Map.

Figure 2. Study Area (Interview Locations)



II. METHODS

There were two data collection modes for this study. A short one-page interview schedule (called the exit interview form) was used to collect recreation use information and names and addresses of users as they left the study area. This form was used to develop a representative list of names and addresses to which questionnaires could be mailed later. The second data collection technique was a mail questionnaire to acquire information on: (1) user preferences for specific recreation activity and experience opportunities; (2) reactions to possible management actions; (3) characteristics of the recreation users; and (4) user preferences for the attributes of the physical, social, and managerial environment which identify the criteria for the ROS recreation opportunity classes. It should be made clear that responses to all interviewing was voluntary, so no one was obligated to respond to any of the data collection efforts.

Exit Interview

The primary objective of the exit interview procedure was to collect a representative sample of names and addresses of Sierra recreationists to build a sample frame for the mail questionnaire. This field contact also was used to collect use information concerning primary recreation activity and where, and how long, the respondents had been recreating in the study area. A primary concern was not to take much of the users' time during their visit to the SNF.

Interviewing Procedures

The procedures for contacting SNF recreationists utilized an interview technique pilot tested in various recreation environments over the past three years. That technique requires contacting recreationists at interview locations as they are leaving the study area. Those locations were either trailheads, parking lots, or along roadsides as illustrated in the Figure 2 map of the study area. Most of the exit interviewing was done along roadsides in this study.

Vehicles were stopped for interviewing only when the interviewer had completed the previous interview and could safely extract a vehicle from the normal traffic flow. Once a vehicle was stopped, the interviewer proceeded with the interview according to a predetermined set of decision rules defining the questioning procedure.[1] The interviewer approached and questioned either the driver or passenger based on a systematic routine for identifying the interviewee, and conducted the interview while the respondent remained in the vehicle. The reason for shifting the interview from driver to passenger was to obtain a more representative list of area users. The drivers exiting recreation areas tend to be males and heads of households. Because our interests were in the opinions and preferences of other users as well, a practical compromise for obtaining a representative sample was to systematically shift from driver to passenger, etc. The interviewee was asked for his/her cooperation concerning participation in the study and supplying a name and address for follow-up questionnaires. Other passengers in the vehicle were asked for their names and addresses if they resided in

[1]For more details, refer to the study plan dated May, 1979.

a different household than the primary respondent. Any people refusing to participate were thanked for their time and allowed to proceed. The average total interview time was approximately two minutes.

Sampling Design

The sampling design adopted for the winter/summer research consisted of randomly selecting a sample of recreation users from the total population of users participating in recreation activities in the study area during the sampling period. The sample design could be described as a stratified random sample clustered by days. A stratification structure partitions a target population into a number of homogeneous groups. In this study, each interview station was a stratum. In addition, another stratification structure was used to delineate the weekend, weekday, and holiday differences. The size of sample selected from each stratum was determined by the total population (in this case, vehicles or parties passing by the interview station) of that stratum. Therefore, a scheme utilizing the concept of sampling proportional to use was used to sample each stratum by assigning the appropriate number of interview periods to each station according to the amount of use at that station. In addition to a stratification structure, the sample was divided further into clusters comprised of days. Each cluster consisted of a day, with the elements of that cluster defined as the recreation population of people exiting the study area on that day. A sample of clusters was taken from the whole sampling period by selecting specific sampling dates. Once the sample of clusters was selected, the actual interview time period within each cluster represented a subsample of the elements of that cluster.

Because of the information needs expressed by FS managers, the exit interview form was used to "grab sample" recreation users in the Bass

Lake area during the summer sampling period. Since this area is isolated outside the main study area, the grab sample technique was needed to acquire information from those recreation users. In this study, a grab or fortuitous sample consisted of using the exit interview at a designated recreation site to get information from a test group. Sampling using a grab sample technique might or might not produce a representative sample, but it is not designed a priori to do so because it is less expensive to implement. Therefore, the Bass Lake respondents came from a convenience or fortuitous sample which was designed to provide useful information about user preferences in that area. Areas selected for grab sampling were not considered part of the main study area; hence use statistics were not calculated for those sites.[2]

The sampling scheme[3] and the use statistics generated from the survey were limited to the extent that the sample sizes selected for each sampling period could not be estimated from population variance estimates for the variables included in the study. Sample sizes can be calculated for surveys in areas where previous studies have defined, measured, and produced population variance estimates of the same variables to be quantified in the new study. Since data for specific variables needed to produce variance estimates were not available for the study area selected, sample size estimates determined for this study were primarily a function of vehicular volume estimates from the California Department of Transportation, FS use estimates, budgetary constraints, the judgment of research personnel, and RMS statisticians

---

[2]A separate report appended to this report summarizes the recreation experience preferences of Bass Lake users. Please refer to Appendix I for this report.

[3]Refer to the study plan dated May, 1979 for more details about the sampling plan (times and locations).

advising the study. Further studies will benefit from variance estimates generated ex post facto from this study.

Questionnaire

Once the users were stopped as they were exiting the study area, a short, one-page questionnaire (exit interview form)[4] was used to record their responses. The respondents were first questioned as to whether or not they were primarily on a recreation excursion. Respondents not on a recreation trip were thanked for their time and directed back to the highway. For those recreating in the study area, information was obtained concerning most important recreation activity, location of participation, time spent in study area zones, and previous visits to the area in the last 12 months, as well as names and addresses including zip codes. Observations also were made of the type of vehicle, and number of people in the party and vehicle.

Analysis

A summary of the results from the exit interview data analysis is in Appendix H of this report. Specifically, that report includes the following information:

1. Summary statistics describing the interviewing at each winter and summer interview station.
2. Summary of the most important activity indicated by the respondents.
3. Primary use zones for the most important activity.

[4]Appendix A, Figure A-1.

4. Average size of party and number of people per vehicle.

Mailed Questionnaires

The mailback questionnaire phase of the research was the most important for identifying the recreation related preferences of visitors to the Sierra National Forest. The names and addresses obtained from the exit interview constituted the sample frame for distribution of the mail questionnaire.[5] The content of the mail questionnare, mailing procedures, and data analysis are discussed in this section.

Mail Questionnaire Content

Although separate questionnaires were designed for the winter and summer samples, each questionnaire contained questions designed to provide broad types of information:

1. Questions designed to identify the types of recreation experiences users desire.
2. Questions designed to measure users' opinions about actual and possible management actions in the area.
3. Questions focusing on the demographic characteristics of the users.
4. Questions measuring user preferences for the biophysical, social, and managerial attributes used to identify ROS classes.

---

[5]The sample of recreationists obtained for both the winter and summer parts of this study were respondents from a roadside traffic stop survey conducted in the SNF from mid-February to September, 1979. During this time period California service stations had a limited and variable supply of gasoline. While we are reasonably certain that our survey produced a representative sample of SNF users during the sampling period in 1979, we cannot be certain that 1979 was a representative year to sample SNF recreationists.

Fifty-six "items" were used as questions to identify and measure user preferences for different recreation experiences. These items were selected from a pool of items used in previous studies by Driver and Brown in other parts of the country. For analysis and data reporting purposes, statistically and logically related items are grouped into scales (i.e., a small group of items defining the same type of recreation experience, such as enjoyment of nature, development of skills, escaping noise back home, etc.). Similar scales can be combined even further into experience domains. Domains are broader concepts than scales, and are composed of one or more scales which together represent a similar general theme, such as general escape, learning, achievement, etc. This study reports the users' responses to both the scales and domains described by the selected recreation experience preference items.[6]

The recreation experience preference questions were presented to the respondents using a Likert response format. That format permitted the respondent to indicate the degree to which a particular type of recreation experience was preferred or valued relevant to participation in a particular activity in the SNF. Two different sets of instructions and related response formats were used in both the winter and summer research. This required two separate questionnaires and two subsamples of respondents for each sampling period (i.e., winter and summer). One format asked respondents to rate how important each of the 56 (55 for the winter study) recreation experience preference items[7] was to them as a reason for participating

---

[6]Refer to Appendix A, Table A-1 for the complete list of items, scales, and domains used in this study.

[7]A total of 58 (summer questionnaire) and 57 (winter questionnaire recreation experience preference items were included on the respective questionnaires. The first two items of each questionnaire were not analyzed because respondents need a couple of items to become accustomed to the response format. Only results from 56 (summer) and 55 (winter) items are reported.

in their selected most important activity (i.e., that one activity they enjoyed the most or spent the most time doing in the SNF). They ranked each response on a six-point response format ranging from "not important" to "extremely important".[8] The other format asked the degree to which each listed experience would either add to or detract from their satisfaction if they were to participate in their selected most important activity next summer.[9] Responses to this format were obtained on a nine-point response format from "most strongly adds" to "most strongly detracts". In each case the same set of recreation experience preference items were used. Two formats were included in this research to facilitate a comparison of the preferences of Sierra recreationists with other users' preferences surveyed in other study areas, since more comparative data was available for the two formats combined than for each taken separately.

A second section using a modified Likert response format solicited users' opinions on specific management issues of special concern to Sierra planners and managers. The 10-15 questions focusing on possible management considerations were developed with input from the recreation staff of the Pineridge Ranger District. Users responded to the questions using a nine-point response format from "strongly favor" to "strongly oppose".[10]

Questions about the demographic characteristics of the sampled recreationists were included to identify better the users of the SNF. Information was obtained concerning respondent's age, sex, education, community population, and zip code of place of permanent residence.

---

[8]See Appendix A, Figure A-3 (Winter Green) - Section IV for example.

[9]See Appendix A, Figure A-2 (Winter Yellow) - Section IV for example.

[10]See Appendix A, Figure A-2 (Winter Yellow) - Section II for example.

The recreation opportunity spectrum (ROS) system has been developed for inventorying, classifying, planning, and managing outdoor recreation resources.[11] Each recreation opportunity class identified by the ROS system is defined by a set of criteria including specific resource, social, and managerial attributes. The questions relating to the ROS system asked the respondents specific questions based on their perceptions about the attributes of the area. The winter and summer questionnaires used different formats to solicit the ROS information. Table 1 lists a breakdown of the questions included on each of the SNF questionnaires. Discussion of the different formats is presented below along with other differences in the questionnaires.

Winter. The two questionnaires designed for the winter[12] segment of the research incorporated questions from each of the four categories described above. Additionally, two formats were used to obtain information about the characteristics specified in the ROS system. One sample of users was asked to mark a recreation location on a map and then rate their perception of the existing (what is actually there now) resource, social, and managerial characteristics inherent to that specific area. The other winter sample received a ROS question developed to determine which ROS characteristics the user liked, disliked, or felt was unimportant while recreating in their most important activity. Then each respondent rated five different settings to determine which setting was most favorable for recreation participation in their selected activity.

---

[11]More detail on the ROS can be found in Driver and Brown, 1978; Brown, Driver, and McConnell, 1978; Brown, Driver, Bruns, and McConnell, 1979.

[12]See Appendix A, Figures A-2 (Winter-Yellow) and A-3 (Winter-Green).

Table 1. Outline of the questions contained on the four questionnaires used to solicit preferences of selected Sierra National Forest recreationists (Winter/Summer, 1979).

Question Categories	Winter Questionnaire		Summer Questionnaire	
	Green	Yellow	Buff	Yellow
Recreation Experience Preferences	✓	✓	✓	✓
Importance Format	✓			✓
Adds-Detracts Format		✓	✓	
Management Preferences	✓	✓	✓	✓
Possible Management Actions	✓	✓	✓	✓
Condition of SNF Environment			✓	✓
General (Overall)			✓	✓
Social and Ecological			✓	✓
Maximum Use Levels			✓	✓
ROS Questions	✓	✓	✓	✓
ROS Map - Existing Situation		✓		
Like/Dislike Characteristics	✓			
Preferences - Five Overall Settings	✓			
Preferences for Specific Characteristics			✓	✓
Socioeconomic (Demographic) Characteristics	✓	✓	✓	✓
Quality of Neighborhood and Work Environment			✓	✓
Activity Participation	✓	✓	✓	✓
Most Important Activity	✓	✓	✓	✓
Previous Visits to the SNF	✓	✓	✓	✓
Previous Visits to John Muir Wilderness			✓	✓
Previous Visits to Kaiser Wilderness			✓	✓

Summer. The two questionnaires designed for the summer[13] respondents contained questions from each of the four major question categories. Each summer questionnaire also included questions specifying detailed management considerations, a ROS question different from the winter formats, and subjective user perceptions of their home and neighborhood conditions.

Management questions solicited users' opinions on the quality of commercial services, traffic congestion, vandalism, and regulations in and around the study area. Other management questions focused on the physical and social conditions of wilderness, backcountry, and developed campground areas in the SNF.

The summer question concerning the ROS system specified a broad range of characteristics of ROS settings. Recreationists checked those characteristics preferred the most when participating in their most important activity.

One hypothesis of recreation behavior held by the researchers is that the conditions of people's neighborhood and work environments can influence a recreationists' experience preferences. A pilot question was included on the summer questionnaire to obtain the users' subjective appraisal of selected conditions of their home and work environments. The purpose of this investigation was to explore the possibility that the preferences of users of California national forests are strongly influenced by the conditions experienced in the urban areas in which many of them live.

---

[13]See Appendix A, Figures A-4 (Summer-Buff) and A-5 (Summer-Yellow).

Data Collection

Recipients of the mail questionnaires were selected from the sample frames of names and addresses from the exit interviewing by randomly selecting a subsample from the appropriate winter or summer sample frames. A survey packet containing the questionnaire, cover letter, and postage paid return envelope was mailed to each selected user. Those people who did not respond to the first mailing were sent a second survey packet three weeks after the first mailing and a subsequent third packet three weeks later if no response was received after the second mailing. Respondents who completed and returned the questionnaires, and that portion of the sample whose survey packets were returned as non-deliverable, were not sent questionnaires during follow-up mailings.

Analysis

Analysis of the mailback questionnaire data using the Colorado State University Cyber 172 computer was initiated after the questionnaire information was coded, keypunched on computer cards, and verified for accuracy. Statistical analysis routines were selected from the Statistical Package for the Social Sciences (Nie et. al., 1975) and I-Clust (Revelle, 1976) computer packages.

Analysis of User Characteristics and Preferences. Several statistical programs (frequencies, cross-tabs, ANOVA, breakdown, etc.) from the Statistical Package for the Social Sciences (SPSS) were used to produce descriptive and summary statistics on selected questionnaire data and to compare various user groups. Data describing visitor characteristics were analyzed using the number of responses and percentages in each response category, rank orders, means, and standard deviations. Responses categorized into

Likert scaled formats (management questions, recreation experience preferences, and ROS questions) used selected descriptive statistics described above and more advanced analyses designed for comparisons of identifiable user groups. A discussion of these statistics is presented below.

Mean values used to describe an average response to selected questions were determined by dividing the sum of all responses by the number of respondents. When logically related items were grouped into a category (scale), a respondent's scale score was calculated, and overall sample means were derived from those values. This procedure consisted of summing the individual item scores (separately for each respondent) and dividing by the number of items in the scale answered by the respondent. The overall mean scale scores were then calculated from the individual respondent scale scores. Since previous research has consistently defined a close association between items belonging to the same scale, respondents only had to answer one item from a scale to have a scale score determined. Similarly, the overall mean domain[14] scores for domains with multiple scales were determined by developing a domain score (from the scale scores) for each respondent and then averaging these scores to get the overall mean domain score across all respondents.

---

[14]While most of the descriptive statistics and comparative analyses are presented through discussion of relationships between recreation experience preference scales, the domain values are included on most tables to: (1) define logical groupings of scales for interpretation; (2) facilitate comparison of SNF user preferences with preferences of recreationists from other studies reported only as domain scores; and (3) to fully document the results of the research.

Standard deviations give one indication of the variability or variance of all the responses around the mean value. Individual item standard deviations were computed using the standard computational form found in any statistics book. Standard deviations from multiple item scales were computed by averaging standard deviations of the items within that scale. Multiple scale domains have standard deviations averaged from the standard deviations of the scales belonging to each domain.

Rank orders are reported to determine the relative importance (highest to lowest) of a series of scores or numbers listed in the tables of this report. The score having the highest value received a rank of one with subsequent scores ranked sequentially in descending order from highest to lowest. Two or more scores with equal values were ranked the same, but were each counted individually to reflect proper ranking of subsequent data. For example, a column of rank orders might show number one rankings for each of three equal scores followed by the next score ranked fourth. That score was ranked fourth, instead of second or third, because there were three scores with higher values.

Selected characteristics identified by questions on the mailback questionnaire were used to categorize the sampled respondents into subgroups (e.g., hikers, fishermen, cross-country skiers, etc.). Further statistical testing of the scaled questions was conducted to determine if significant differences existed between the calculated mean scores of each subgroup or category. A test indicating a statistically significant difference ($p \leq .05$)[15] between

---

[15]The probability level (p) listed in parentheses defines the range of acceptable probability levels that were used to reject the hypothesis that the differences between the observed (sample) means were due to chance. Significant differences between the means were reported if the tests showed probability levels less than or equal to 5 percent ($p \leq .05$).

two sample mean scores suggests that the observed discrepancy would occur by chance along 5 percent of the time or less. Loosely interpreted, if the statistical criterion are met, there is strong evidence to support the premise that the subgroup means are actually (and not randomly) different.

Two statistical procedures were used to test for mean differences. A comparison involving only two sample mean scores was examined using a Student's t-test. When the analysis consisted of more than two sample means, Analysis of Variance in conjunction with a Student-Newman-Keuls test was utilized to discern the pairwise differences. The Analysis of Variance procedure was used first to test for the existence of statistically significant differences ($p \leq .05$). If differences were found, then the Student-Newman-Keuls test was used to isolate specific differences by comparing all possible combinations (pairs) of sample means. The interpretation of the results is identical for either of the statistical procedures used (i.e., Student's t-test or Analysis of Variance/Student-Newman-Keuls test). Subgroup breakdowns described above were principally performed on the most important activity categories and groups of respondents residing in specific areas of California.

Comparative Analysis. Three separate analyses were used to compare SNF recreationists to users in similar environments identified in previous studies. The first analysis procedure compared recreation experience preference scale (or domain) means for similarities and differences between study areas. Pearson Product-Moment Correlation Coefficients were incorporated into the second analysis procedure to measure the strength of the relationship between the recreation experience preference means compared from different studies. The last procedure used in the comparative analysis identified the Sierra recreation

experience preference scale and domain structures, and compared these for consistency with the standard structures defined in past research.

Mean values were used in the first comparison procedure to discern similarities and differences between the recreation experience preferences of recreationists from the SNF and recreationists from other similar environments. Users participating in a specific recreation activity in the SNF were compared to recreationists participating in the same activity from the other study areas. The magnitude of the discrepancy between the mean values for the recreation experience preference scales (or domains) formed the major criterion for determining similarities or differences between the studies. Statistical tests will consistently isolate statistically significant differences when the means differ, by as little as 0.5 (Driver et al., 1977). Yet, few recreation experiences with mean differences that small can be considered to be practically different for management purposes. Therefore, all statistically significant differences (using statistical tests) are not always worth worrying about from a managerial perspective. We judge that no difference in mean scores of less than 0.7 scale points (on the response scale) is meaningful for management. This is obviously a judgment on our part based on past research experience and working closely with recreation resource managers.

The value of a Pearson Product-Moment Correlation Coefficient (used in the second comparative procedure) varies from -1 to +1, and is a measure of the strength and type of relationship between two variables. A value of +1 or -1 indicates that there is a perfect positive or negative relationship between the two variables in question. The further from zero in either a positive

or negative direction, the stronger the relationship. A value of zero indicates there is no relationship between the two variables. For example, the correlation between height and weight would probably take on a positive value, such as .75. As used in this report, the closer the value of the correlation coefficient is to +1, the more similar the two areas were in the way recreationists responded to the recreation experience preference scales.

Another measure of how well the recreation experience preferences of SNF users compared with those preferences of recreationists in other areas gives a rough estimate of similarity of preference. The reasoning behind the method is a little complex, but essentially the method helps determine if users of the SNF answered the recreation experience preference items in a similar way to results of previous studies conducted over the past ten years. The degree to which they did or did not give similar responses to two or more closely worded questions was compared to the responses of recreationists in other study areas.[16] This analysis used the I-Clust hierarchial cluster analytic program to group the recreation experience preference items into central concepts or themes (scales). One statistical criterion developed from past clustering analyses uses a measure of internal consistency or reliability (Cronbach alpha (α)) to establish uniform scales.

---

[16]For example, assume that the three questionnaire items "to improve my physical health, "to get some exercise", and "to help me keep in shape" were the three questions asked to determine how important exercise was as a reason for visiting the SNF. Past studies show that users almost always respond to each of these three questions in a very similar (in many cases identical) way (i.e., rate them each about the same place on the response scale). If SNF users were not consistent in how they rated these items, one possible explanation is that they have different recreation experience preferences than recreationists previously studied.

A designated minimum statistical level of a Cronbach $\alpha \geq 0.6$ has been set to verify recreation experience preference item membership in scales and domains (Driver, 1977). Comparison of the alpha values from the SNF scales and domains to alpha values for identical scales and domains from previous studies was one method used to determine if SNF users have similar preferences to recreationists in other parts of the country.

III. CHARACTERISTICS AND PREFERENCES OF WINTER USERS

This part of the report focuses on the characteristics and preferences of winter visitors to the SNF. The data shown in the ensuing tables were analyzed from the two winter mailback questionnaires. The winter recreationists are described by characteristics including age, sex, education, and size of place of permanent residence. Specific activity preferences, recreation experience preferences (REP's), and preferences for possible management actions are all outlined from the responses of the winter recreationists.

Mail Questionnaire Response

The sample of SNF winter recreationists was randomly divided into two groups for receipt of one of the two winter questionnaires sent during the fall of 1979. Table 2 presents the response rates for each of these questionnaires compiled after three mailings. Sixty percent of the people receiving questionnaires returned them complete and ready for keypunching. Approximately 7 percent of the total sample did not receive questionnaires, and was subsequently classified as non-deliverable. When the number of non-deliverable questionnaires was subtracted from the total number mailed, the effective sample size was determined. This figure, along with the number of returned questionnaires, was used to calculate the response rate.

Although 60 percent was a reasonable rate, a higher rate is desirable because it would help confirm that the responses documented in this report reflected those of all SNF users visiting the study area. One way to determine if the sample of respondents returning the questionnaires was a good

Table 2. Response to the Sierra National Forest Questionnaire mailings (Winter, 1979).[a]

Questionnaires[b]	Sample Size	Non-Deliverable	Effective Sample Size[c]	Returned Complete	Response Rate Percentage[d]
Winter Green	296	22	274	164	60
Winter Yellow	885	59	826	492	60

[a]The questionnaire for winter users was sent through the postal system in the fall of 1979.

[b]Copies of the questionnaires can be found in Appendix A, Figure A-2 (Winter Yellow) and Figure A-3 (Winter Green).

[c]Effective sample size reflects the number of people actually receiving the questionnaires.

[d]Percentage calculated by dividing the number of returned questionnaires by the effective sample size.

subsample of the visitors interviewed in the SNF was to compare the respondents to the non-respondents. Since both groups were contacted initially during the exit interview procedure, it was possible to compare the responses of both groups. Specifically, an analysis of selected variables from the exit interview data was conducted to determine if certain subgroups from the overall sample were over-sampled or under-sampled. Given the overall sample had 53 percent response rate (i.e., that group who responded to the mail questionnaire and had accessible exit interview data), we would expect that 53 percent of each subgroup or subcategory would be represented in the sample returning questionnaires. If not, then the specific subgroup would be overrepresented or underrepresented. A ten percent difference from the expected value constituted a discrepancy large enough to report.

The six variables selected from the exit interview data for the non-response analysis included: (1) number of people in the party; (2) number of people in the vehicle; (3) previous visits to the study area; (4) vehicle type of recreationists; (5) primary recreation activity; and (6) total hours of recreation. Only two variables, primary recreation activity and total hours of recreation, showed discrepancies from the expected values for the respondent and non-respondent groups. Two of the 23 primary recreation activities tested in this analysis are misrepresented in the respondent sample (Table 3). There are 17 percent too many cross-country skiers and ten percent too few fishermen. Conversely, the non-respondent sample is overrepresented by fishermen and underrepresented by cross-country skiers. Yet, considering all the activities and other variables checked, these discrepancies should not bias the respondent sample.

The mean hours of recreation participation for the overall sample was 13 hours. The respondent sample had a higher mean (15.1 hours) than the

Table 3. Comparison of the actual to the expected percentage of Sierra users responding to the mail questionnaire categorized by activity groups (Winter, 1979).[a]

Variables	Respondents		Non-Respondents	
	Actual Percent[b]	Expected Percent[c]	Actual Percent[b]	Expected Percent[c]
Primary Recreation Activity				
Cross-Country Skiers	70	53	30	47
Fishermen	43	53	57	47

[a]Only variables exhibiting a 10 percent or greater discrepancy between the actual and expected percentages are included in this table. All data analyzed from the exit interview form.

[b]Actual percentages reflect the total exit interview sample in each primary recreation activity that did respond (or did not respond) to the mailback questionnaire.

[c]Expected percentages reflect the portion of the total exit interview sample in each primary recreation activity that should have responded (or not responded) to the mailback questionnaire based on the overall response rate to the mailback questionnaire. This percentage is different from the percentage shown in Table 2, since not all people receiving the mail questionnaire had available exit interview data.

expected. A mean of 10.6 hours, 18 percent lower than the expected value, was determined for the non-respondent group. Apparently, people staying in the study area longer intervals of time are more likely to respond to the mail questionnaires.

This analysis was by no means intended to cover all the possible characteristics of the sample that could influence the reported results. Selected variables were analyzed to provide an indication of subgroup misrepresentation. It is our opinion that the respondent sample adequately reflects the characteristics inherent in the overall sample, and the sample size is large enough to conduct most of the relevant analyses.

Sample Summary Statistics

Characteristics of Visitors to the SNF

Selected demographic characteristics of the respondents sampled during the winter portion of the SNF study are presented in Table 4. The average age of the SNF respondents was almost 36 years with over 30 percent of the respondents between the ages of 26 and 35. Seventy-seven percent of the sample was male. [17] The average amount of education was equivalent to three years of college with 74 percent of the respondents having at least one year of college education. One quarter of the people responding to the questionnaire lived in communities smaller than 25,000 total population. Over 40 percent was from cities between 100,000 and 500,000 people.

---

[17]The sample clearly overrepresents male recreationists. Sampling people in vehicles as they exit the study area provide a difficult setting for randomly selecting male and female respondents. Prospective female respondents invariably do not end up in our name and address sample frame because: (1) males quickly volunteer the answers; (2) females seek help from the males; or (3) the male name is usually given for the mail return questionnaire.

Table 4. Age, sex, education, and size of place of permanent residence of respondents sampled in the Sierra National Forest (Winter, 1979).

Age (N=646)	Age	Percent	
	Under 18	3	
	18 - 25	24	
	26 - 35	33	Mean = 36 years
	36 - 50	22	
	51 - 65	14	
	Over 65	4	
Sex (N=648)	Sex	Percent	
	Male	77	
	Female	23	
Education (N=643)	Years of Formal Schooling	Percent	
	12 or under	26	Mean = 15 years
	13 - 16	51	
	Over 16	23	
Size of Place of Permanent Residence (N=631)	Population	Percent	
	500,000 or more	10	
	100,000-500,000	42	
	25,000-100,000	22	
	5,000-25,000	14	
	Below 5,000	6	
	Rural	7	

The zip code responses by major metropolitan area and other logical groupings are illustrated in Table 5. Respondents from local areas and Fresno account for over 60 percent of the sample. The two largest metropolitan areas in the state and people residing outside California contribute little to winter recreation participation. These results indicate that the SNF is predominantly a local-regional destination area for winter recreation as opposed to a statewide or national destination area.

Table 6 gives an indication of the familiarity the respondents have with the SNF. Respondents were asked to indicate the number of previous winter and spring visits they had made to the SNF. Over 40 percent of the respondents had visited the area less than four times during the specified seasons. Approximately one-fifth of the sample could be characterized as very familiar with the SNF accounting for at least 16 previous visits per person.

Recreation Activities of SNF Users

A summary of the recreation activities of the winter study sample is shown in Table 7. Respondents checked all the activities they participated in during the winter and spring of 1979. Rank orders for activities were calculated by assigning the highest ranks to the activities with the most respondents indicating recreation participation. Hiking was ranked number one. Other activities with over 60 percent respondent participation included snow play, picnicking, fishing, sightseeing, and just getting away.

The "most important" activity of each respondent was determined by asking which activity each person spent the most time doing or enjoyed the most while visiting the SNF. Responses to this question form the basis for most of the comparison analyses incorporated in this report. It is important

Table 5. Residence locations of respondents sampled in the Sierra National Forest (Winter, 1979).

Residence Locations[a]	Number of Respondents	Percent[b]
Local[c]	28	4
Fresno	370	58
San Francisco	22	3
Los Angeles	50	8
Other California	164	26
Out-of-State	10	2

[a]Residence is based on zip code of respondent's permanent address.

[b]Percentage values are based on N=644 respondents with valid zip codes.

[c]Local includes respondents from communities within and in close proximity to the Sierra National Forest.

Table 6. Number of previous winter/spring visits to the Sierra National Forest of respondents sampled (Winter, 1979).

Number of Previous Visits[a]	Number of Respondents	Percent[b]
1	123	19
2 - 3	153	24
4 - 6	133	21
7 - 15	120	19
16 - 30	61	10
Over 30	51	8

[a]Number of previous winter/spring visits to the Sierra National Forest in the past year.

[b]Percentage values are based on at least N=641 respondents answering this question.

Table 7. Number of respondents sampled indicating participation in specific activities in the Sierra National Forest (Winter, 1979).[a]

Activity	Number of Respondents[b]	Percent[c]	Rank Order[d]
Hiking	432	66	1
Getting Away[e]	423	65	2
Sightseeing	404	62	3
Snow Play	394	60	4
Fishing	390	60	5
Picnicking	388	60	6
Photography	302	47	7
Downhill Skiing	298	46	8
Wildlife Viewing	241	37	9
Camping Near Auto	235	36	10
Exploring	230	35	11
Visiting Friends	230	35	11
Cross-Country Skiing	208	32	13
Camping Away From Auto	182	28	14
Sledding	165	25	15
Nature Study	155	24	16
Rock Climbing	124	19	17
4-Wheel Driving	120	18	18
Hunting	113	17	19
Snowmobiling	56	9	20
Snowshoeing	51	8	21
Ice Skating	16	2	22

[a]Since recreationists could participate in more than one activity, the percent column will not total 100 percent.

[b]Number of respondents sampled who indicated recreation participation in the listed activity.

[c]Percentage values are based on N=654 respondents answering this question.

[d]Activities are ranked in descending order based on the number of respondents in each activity. Tied scores are given the same rank.

[e]Getting away was mentioned often by recreationists when asked for recreation activities during the exit interview (e.g. getting away from the heat, getting away from city, etc.), therefore, getting away was included as an activity on the mail questionnaire.

to be familiar with the terminology, "most important" activity, and to understand the question asked of respondents.

Table 8 shows that almost 30 percent of the users listed downhill skiing as their most important activity. Only fishing, cross-country skiing, and downhill skiing were reported as a most important activity by more than five percent of the respondents. In combination, Tables 7 and 8 show clearly that the SNF users engage in a variety of activities during their visits, and that some activities, such as hiking, getting away, and sightseeing, are engaged in frequently during visits to participate in other "most important" activities.

The respondent's number of previous winter and spring visits by membership in selected most important activities is illustrated in Table 9. The activity subgroupings appear to explain some of the variation in the number of previous visits. Those respondents listing snowmobiling as their most important activity had the highest number of visits during that year. Thirty percent of that group returned to the area more than 15 times. Sightseers and those people just getting away represent the opposite extreme. More than one third of those respondents were visiting the Sierra for the first time. It is likely that people who previously were sightseers on their first trip would return to the Sierra with a specific activity in mind, and fall into one of the other most important activity groups. That is one explanation for the high percentage of first time visitors in that activity group compared to the other activity groups.

Recreation Experience Preferences (REP's)

Two different question formats (adds-detracts and importance) were used in this study to determine the recreation experience preferences (REP's)

Table 8. The most important activity of the respondents sampled in the Sierra National Forest (Winter, 1979).

Most Important Activity[a]	Number of Respondents[b]	Percent[c]
Downhill Skiing	185	29
Fishing	121	19
Cross-country Skiing	118	19
Hiking	33	5
Sightseeing/Auto Driving	23	4
Getting Away[d]	22	4
Camping Away From Auto	21	3
Camping Near Auto	19	3
Snowmobiling	16	3
Hunting	15	2
4-Wheel Driving	9	1
Snow Play	7	1
Visiting	7	1
Exploring	6	1
Sledding/Tobogganning	5	1
Photography	5	1
Nature Study	3	<1[e]
Rock Climbing	3	<1[e]
Wildlife Viewing	2	<1[e]
Picnicking	1	<1[e]
Other Activities	16	3

[a]Activities are listed in descending order based on the number of respondents. Activities which were not listed as most important activity by any of the respondents are not included in this table.

[b]Number of respondents sampled who listed this activity as the one they enjoyed the most or spent the most time doing during their visits to the Sierra National Forest.

[c]Percentages are calculated based on (N=637) number of respondents answering this question.

[d]Some respondents had no traditional recreation activity in mind. They were simply getting away.

[e]All less than 1 percent.

Table 9. Percentage of recreationists in each most important group by their total number of previous winter/spring visits, for respondents sampled in the Sierra National Forest (Winter, 1979).

Number of Visits[a]	Most Important Activity						
	Snow-mobiling (N=15)[b]	Downhill Skiing (N=182)[b]	Cross-Country Skiing (N=116)[b]	Fishing (N=116)[b]	Camping Near Auto (N=19)[b]	Hiking/Camping Away From Auto (N=54)[b]	Sightseeing/ Getting Away (N=45)[b]
	Percent	Percent	Percent	Percent	Percent	Percent	Percent
1	13	19	21	16	11	19	36
2 - 3	13	23	26	19	26	33	27
4 - 6	13	17	24	30	32	20	22
7 - 15	27	20	21	22	21	17	2
16 - 30	20	11	6	9	11	7	7
Over 30	13	11	3	5	0	4	7

[a]Number of previous winter/spring visits to the Sierra National Forest in the past year.

[b]Percentage values are based on the number of respondents (indicated by N) in each most important activity group answering this question.

of sampled recreationists visiting the SNF during the winter of 1979. This section of the report utilizes the adds-detracts question format to present the results of the REP question.[18] The adds-detracts question asked respondents to rate whether each REP item would add to or detract from the level of satisfaction they would probably realize if they visited the same area next year and participated in their listed most important activity.

Several different levels of data specificity and statistics for data analysis are used in this report to document the REP's of winter SNF recreationists. This section presents a managerially relevant subset of this information, including: (1) overall REP's of the winter SNF sample; (2) REP's of winter recreationists participating in selected most important activities; (3) differences between REP scores of winter users participating in different activities; and (4) differences between REP scores of winter visitors to the SNF coming from different areas of California.[19]

---

[18]Previous studies of user preferences conducted by Brown and Driver in the last five years used the adds-detracts format, while studies prior to that time by Driver used the importance format. Two formats were used in this study only to facilitate the comparison of the REP's of SNF users to recreationists in other parts of the country surveyed during previous studies. To avoid redundancy and unnecessary confusion, most of the REP analysis will be discussed using the adds-detracts format, except where comparison with previous research requires the importance format.

[19]Comprehensive documentation of the winter REP analyses are in Appendix B, Tables B-1 to B-4. Included in these tables are the means, standard deviations, and number of respondents for the REP items, scales, and domains for all sampled winter recreationists in the SNF. Detailed REP analyses are also available for all recreationists categorized by most important activity. Additionally, Appendix B contains the above REP documentation for SNF respondents receiving the questionnaire with the importance format.

The 55 REP items included on the winter mail questionnaires were grouped according to previous research into 42 scales and 18 domains (Table 10). The REP scale scores, like the individual REP item scores, could vary from +4 (adds to satisfaction) to -4 (detracts from satisfaction). While the scale means for the Sierra sample indicated that all the scales added to respondents' satisfaction, the values ranged from a +0.3 mean (i.e, neutral) for the Risk Taking scale to a +3.3 mean (i.e., strongly adds to satisfaction) for the Scenery and Escape Role Overloads scales. REP scales were rank ordered from those with the highest means to scales with the lowest means. Scales with the same mean value were assigned equivalent ranks and subsequent ranks were adjusted to reflect the number of scales with higher ranks. Ranked number one were the Scenery and Escape Role Overloads scales followed by the Escape Daily Routine and General Nature Experience scales tied for a number three ranking. All scales in the Leadership/Autonomy, Risk Taking, and Meeting/Observing Other People domains show relatively low rank orders.

It is often difficult to identify the REP scales most relevant to land management planning. Intuitively, scales defining concepts most dependent on the resource, using the resource as an active ingredient or agent to deliver the experience opportunities, and having the highest absolute mean differences between subgroups of recreationists will tend to be most relevant to resource planners and managers. Several scales meeting these criteria from Table 10 are the Privacy, Escape Crowds, Meeting New and Observing Other People, Risk Taking, Skill Development, and Competence Testing scales. REP scales showing the largest differences between subgroups of users are discussed in the following section.

Table 10. Recreation experience preference domain and scale (offset to the right) means for those respondents sampled in the Sierra National Forest using the "adds to-detracts from satisfaction" response format (Winter, 1979).

Recreation Experience Preferences Domain Scale	Mean[a] Domain	Mean[a] Scale	Rank of Scale Means[b]
1. Relationships with Nature	3.2		
Scenery		3.3	1
General Nature Experience		3.2	3
2. Escape Personal-Social Pressure	2.9		
Tension Release		2.7	9
Slow Down Mentally		2.5	15
Escape Role Overloads		3.3	1
Escape Daily Routine		3.2	3
3. Exercise/Physical Fitness	2.9		
Exercise/Physical Fitness		2.9	6
4. Being with People	2.6		
Being with Friends		2.4	17
Being with Similar People		2.8	7
5. Escape Physical Pressure	2.5		
Tranquility		2.6	11
Seek Open Space		3.0	5
Privacy		1.4	35
Escape Crowds		2.8	7
Escape Physical Stressors		2.7	9
6. Family Togetherness	2.4		
Family Togetherness		2.4	17
7. General Learning	2.3		
General Learning		2.4	17
Exploration		2.6	11
Geography of Area		1.7	31
Learn about Nature		2.4	17
8. Equipment	2.3		
Equipment		2.3	21
9. Security	2.2		
Social Security		2.2	23
10. Achievement	2.1		
Reinforcing Self Image		2.3	21
Social Recognition		.6	38
Skill Development		2.6	11
Competence Testing		2.5	15
Seeking Stimulation		2.6	11
11. Nostalgia	2.0		
Nostalgia		2.0	25
12. Physical Rest	1.8		
Physical Rest		1.8	28
13. Leadership/Autonomy	1.7		
Independence		2.1	24
Autonomy		1.8	28
Control Power		1.9	26
Teaching-Sharing Skills		1.8	28
Leading Others		.6	38
14. Creativity	1.7		
Creativity		1.7	31
15. Reflect on Personal Values	1.7		
Spiritual		1.9	26
Introspection		1.5	34
16. Temperature	1.2		
Temperature		1.2	37
17. Meeting-Observing New People	.9		
Meeting New People		1.3	36
Observing Other People		.5	41
18. Risk Taking	.8		
Risk Taking		.3	42
Risk Moderation		1.6	33
Risk Avoidance		.6	38

[a]Means are based on responses to a nine-point response format ranging from +4 (very strongly adds) to -4 (very strongly detracts). Calculations for each domain or scale are based on at least N=438 respondents. See Appendix B for a more detailed presentation of REP statistics.

[b]Ranks are based on mean scores on the REP scales, with tied scores given the same rank.

REP Differences Between User Groups

Table 11 shows the scales and domains by the most important activity groups with large enough sample sizes for analysis. Escaping Role Overloads, Scenery, and General Nature Experience scales continued to be ranked high across the activity groups. Overall, the downhill skiers appeared to rank the scales in the Achievement domain higher and the scales in the Escape Physical Pressure domain lower than the cross-country skiers and fishermen.

A more rigorous approach to analyzing the differences on the REP scales between the three activity groups is presented in the far right column of Table 11. A Student-Newman-Keuls test in conjunction with Analysis of Variance ($p \leq .05$) was used to discern pairwise differences between the activity group means. The activity groups can be identified by numbers assigned in the activity group column headings. Under the column labelled "Groups That Differ Significantly", any activity groups (1, 2, or 3) that are to the left of the ">" (greater than) sign have means that are significantly larger than the mean of any activity groups ((1, 2, or 3) to the right of that sign. There is a direct (one-to-one) statistical relationship between the activity groups separated by a sign (>). Therefore, cross-country skiers and downhill skiers each have a significantly greater mean for the Exercise/ Physical Fitness scale than do the fishermen. A NSD notation in the column indicates that "no significant differences" were found between any of the activity group means for the appropriate REP scale.

Overall, 26 of the 42 scales reported in this study show mean differences between the means of at least two activity groups. When different from other activity groups, fishermen tend to score on the low side (20 of 25 scales) of the differences, while cross-country skiers have means on the higher side (15 of 23 scales). Whereas fishermen and cross-country skiers considered certain

Table 11. Recreation experience preference domain (D) and scale (S) (offset to the right) means for those respondents sampled in the Sierra National Forest using the "adds to - detracts from satisfaction" response format, grouped by their most important activity (Winter, 1979).

Recreation Experience Preferences	Most Important Activity Groups									
	1 Fishing (N=68)[a]			2 Downhill Skiing (N=131)[a]			3 Cross-Country Skiing (N=83)[a]			Groups that Differ Significantly[d]
Domain / Scale	Mean[b] D	Mean[b] S	Rank of Scale Means[c]	Mean[b] D	Mean[b] S	Rank of Scale Means[c]	Mean[b] D	Mean[b] S	Rank of Scale Means[c]	
1. Relationships with Nature	3.1			3.0			3.4			
Scenery		3.2	2		3.1	4		3.5	1	3>1,2
General Nature Experience		3.1	3		2.9	7		3.3	3	3>2
2. Escape Personal-Social Pressure	2.8			3.0			2.7			
Tension Release		2.4	12		2.9	7		2.6	17	2>1
Slow Down Mentally		2.5	10		2.5	14		2.3	20	NSD
Escape Role Overloads		3.3	1		3.3	1		3.1	6	NSD
Escape Daily Routine		3.1	3		3.2	2		3.1	6	NSD
3. Exercise/Physical Fitness	2.4			3.2			3.3			
Exercise/Physical Fitness		2.4	12		3.2	2		3.3	3	3,2>1
4. Being with People	2.3			2.9			2.6			
Being with Friends		2.1	17		2.8	11		2.4	19	2>3,1
Being with Similar People		2.5	10		2.9	7		2.8	12	2>1
5. Escape Physical Pressure	2.6			2.0			2.8			
Tranquility		2.7	7		2.1	21		3.0	8	3,1>2
Seek Open Space		2.8	6		2.8	11		3.3	3	3>1,2
Privacy		1.5	30		.7	39		1.8	29	3,1>2
Escape Crowds		3.0	5		2.0	25		3.4	2	3,1>2
Escape Physical Stressors		2.7	7		2.4	18		2.8	12	NSD
6. Family Togetherness	2.6			2.3			2.0			
Family Togetherness		2.6	9		2.3	19		2.0	25	NSD
7. General Learning	2.0			2.0			2.7			
General Learning		2.1	17		2.0	25		2.9	10	3>1,2
Exploration		2.0	20		2.6	13		3.0	8	3>2>1
Geography of Area		1.5	30		1.2	37		2.1	24	3>1,2
Learn about Nature		2.2	15		2.1	21		2.9	10	3>1,2
8. Equipment	2.2			2.5			2.0			
Equipment		2.2	15		2.5	14		2.0	25	NSD
9. Security	1.9			2.5			2.2			
Social Security		1.9	22		2.5	14		2.2	23	NSD
10. Achievement	1.5			2.6			2.2			
Reinforcing Self-Image		1.7	26		2.5	14		2.6	17	3,2>1
Social Recognition		- .1	41		1.3	36		.2	39	2>3,1
Skill Development		1.9	22		3.1	4		2.8	12	2,3>1
Competence Testing		2.0	20		3.1	4		2.7	16	2>3>1
Seeking Stimulation		1.9	22		2.9	7		2.8	12	2,3>1

Table 11. Continued.

Recreation Experience Preferences	Most Important Activity									Groups that Differ Significantly[d]
	1 Fishing (N=68)[a]			2 Downhill Skiing (N=131)[a]			3 Cross-Country Skiing (N=83)[a]			
Domain / Scale	Mean[b] D	Mean[b] S	Rank of Scale Means[c]	Mean[b] D	Mean[b] S	Rank of Scale Means[c]	Mean[b] D	Mean[b] S	Rank of Scale Means[b]	
11. Nostalgia	2.1			2.0			1.7			
Nostalgia		2.1	17		2.0	25		1.7	31	NSD
12. Physical Rest	2.4			1.4			1.2			
Physical Rest		2.4	12		1.4	35		1.2	35	1>2,3
13. Leadership/Autonomy	1.5			1.7			1.7			
Independence		1.9	22		2.1	21		2.3	20	NSD
Autonomy		1.7	26		1.7	30		1.8	29	NSD
Control Power		1.7	26		2.0	25		2.0	25	NSD
Teaching-Sharing Skills		1.6	29		2.1	21		2.0	25	NSD
Leading Others		.4	39		.7	39		.7	36	NSD
14. Creativity	1.3			1.7			1.7			
Creativity		1.3	33		1.7	30		1.7	31	NSD
15. Reflect on Personal Values	1.4			1.5			2.0			
Spiritual		1.5	30		1.7	30		2.3	20	3>2,1
Introspection		1.3	33		1.3	30		1.7	31	NSD
16. Temperature	1.3			1.2			.7			
Temperature		1.3	33		1.2	37		.7	36	1,2>3
17. Meeting-Observing New People	.5			1.9			0.0			
Meeting New People		.9	37		2.2	20		.3	38	2>1,3
Observing Other People		.1	40		1.6	34		- .4	42	2>1,3
18. Risk Taking	.5			1.1			.6			
Risk Taking		- .3	42		.7	39		.2	39	2>1
Risk Moderation		1.1	36		2.0	25		1.4	34	2>3,1
Risk Avoidance		.7	38		.5	42		.2	39	NSD

[a]Calculations for each domain or scale are based on at least the number of respondents indicated by N.

[b]Means are based on responses to a nine-point response format ranging from +4 (very strongly adds) to -4 (very strongly detracts). See Appendix B for a more detailed presentation of activity group REP scales, with tied scores given the same rank.

[c]Ranks are based on mean scores on the REP scales, with tied scores given the same rank.

[d]This column indicates that each activity group (1-3) to the left of the ">" has a mean that is significantly greater than the mean of each group to the right, based on the Student-Newman-Keuls test ($p \leq .05$). Some REP scales showed no significant differences (NSD) between the activity groups.

social conditions (Meeting and/or Observing Other People, Social Recognition) of little importance and valued Tranquility, Escape Crowds, and Privacy, downhill skiers were satisfied with more social interaction and appreciated (scales measuring) personal and social achievement. Cross-country skiers scored higher on the learning and natural environment dimensions than users in the other activity groups.

Means on the 42 REP scales were also analyzed to determine differences between groups based on area of residence in California. The comparisons involved local, Fresno, San Fransicso, and Los Angeles visitors to the SNF. Only the six scales shown in Table 12 had differences between any of the four group means using the Student-Newman-Keuls test. The first three differences illustrate an active or excitement orientation of the San Francisco users. They scored higher on Seeking Stimulation than Fresno users, and higher than both Fresno and Los Angeles recreationists on Exercise/Physical Fitness. Additionally, the San Francisco group has a significantly lower mean than any of the other groups on the Physical Rest scale. Differences shown by the last three scales listed in Table 12 indicate that users from the major metropolitan areas tended to value some of the escape related experiences higher than visitors from local areas.

The mean comparisons discussed in this section clearly indicate that recreationists with different affiliations use the SNF to realize a variety of recreation experiences. Identifiable user groups have distinct patterns of experience preferences, and often rate the relative importance of those experience preferences differently. Close inspection of the individual group mean differences on the REP scales is necessary to identify the preference patterns most relevant to land management planning.

Table 12. Recreation experience preference scales showing significant differences between mean responses of groups based on residence of respondents sampled in the Sierra National Forest (Winter, 1979).

Recreation Experience Preferences Scale	Residence Groups[a] 1 Local (N=16)[b] Mean[c]	2 Fresno (N=245)[b] Mean[c]	3 San Francisco (N=13)[b] Mean[c]	4 Los Angeles (N=36)[b] Mean[c]	Groups that Differ Significantly[d]
Seeking Stimulation	2.7	2.4	3.4	2.9	3>2
Exercise/Physical Fitness	3.4	2.8	3.5	2.7	3>2,4
Physical Rest	2.1	1.8	0.4	1.9	1,4,2>3
Escape Role Overloads	2.6	3.3	3.5	3.5	4,3,2>1
Tranquility	2.1	2.6	2.8	3.0	4>1
Escape Physical Stressors	1.6	2.6	2.9	3.2	4,3,2>1

[a]Residence is based on zip code of respondent's permanent address.

[b]Calculations for each scale are based on at least the number of respondents indicated by N.

[c]Means are based on responses to a nine-point response format ranging from +4 (very strongly adds) to -4 (very strongly detracts) indicating perceived effect on satisfaction.

[d]This column indicates that each residence group (1-4) to the left of the ">" has a mean that is significantly greater than the mean of each group to the right, based on the Student-Newman-Keuls test ($p \leq .05$). These are the only significant differences between any of the residence group means for each scale.

Management Action Preferences

The winter SNF recreationists were asked whether they favored or opposed 18 specific "possible winter managment actions". All recreationists receiving a mail questionnaire were asked their opinions on the first eight management items. Ten additional management questions were developed specifically for respondents who cross-country skied or snowmobiled. This second set was answered by only those recreationists participating in one or both of those two activities. This section summarizes the results of the questions ascertaining those management preferences. Included in this summary are: (1) responses of the overall sample of SNF winter recreationists; (2) differences in user preferences based on most important activity groups and residence locations in California; (3) opinions of cross-country skiers and snowmobilers on specific issues; and (4) differences between recreationists visiting different areas of the SNF.

SNF Recreation Users' Management Action Preferences

Table 13 lists the means, standard deviations, and rank orders of the management items presented to all respondents of the mail questionnaire. All eight management actions have positive values, indicating the respondents generally favored the actions. The magnitude of the means reveal that all the management actions were only slightly to moderately favored. Developing a snow-play area was favored the most, while limiting people in heavily used areas was ranked last and favored the least.

A measure of the variability in the responses relative to the mean values is given by the standard deviations. Standard deviations in Table 13 are all large, indicating that the respondents varied quite a bit in their preferences, resulting in answers widely distributed around the mean value.

Table 13. Management item means and standard deviations for all respondents sampled in the Sierra National Forest (Winter, 1979).

Possible Management Actions	Mean[a]	S.D.[b]	Rank Order[c]
Develop a snow play area for tubing, etc.	1.9	2.0	1
Expand the present boundaries of China Peak Ski Area to provide more downhill skiing.	1.6	2.5	2
Provide winter camping facilities at Huntington Lake.	1.6	2.2	2
Encourage greater lift and trail capacity within the present boundaries of China Peak Ski Area.	1.6	2.3	2
Increase parking facilities in heavily used areas.	1.3	2.3	5
Provide winter camping facilities along State Highway 168.	1.3	2.3	5
Redistribute use to lightly used areas.	1.1	2.3	7
Limit the number of people in heavily used areas.	0.6	2.5	8

[a]Means are based on responses to a nine-point response format ranging from +4 (very strongly favor) to -4 (very strongly oppose). Calculations for each management action are based on at least N=598 respondents.

[b]Standard deviation (S.D.) is a measure of variation in the responses around the mean score.

[c]Ranks are based on mean scores on the possible management actions, with tied scores given the same rank.

This dispersion is illustrated in Table 14 by the percent distribution of answers in each response category. For example, the mean for the management action proposing an expansion of the China Peak Ski Areas was 1.6. Yet, only 19 percent of the respondents answered in the categories "moderately favor" or "slightly favor", which was the mean response of all winter users. Almost 60 percent of the respondents preferred the two extreme categories at either end of the scale, indicating strong opinions. While the general trend was to favor the eight management actions, there was considerable disagreement on how much to favor each action.

Preferences of Recreationists from Selected Activity Groups. Considerable differences exist between "most important" activity groups concerning their opinions on the management actions (Table 15). Five of the eight management items show at least one difference between the activity group means based on the Student-Newman-Keuls test ($p \leq .05$) for pairwise differences, and some of these discrepancies are great. The largest difference between activity group means occurs between downhill skiers and cross-country skiers on the possible management action proposing an expansion of China Peak Ski Area. Downhill skiers strongly favored that action, while cross-country skiers were relatively neutral or slightly in favor. For that management action, the right hand column of Table 15 indicates that downhill skiers (group 2) favored the expansion of China Peak significantly more than members of any other activity group (1, 6, 7, 5, 4, or 3). Also, snowmobilers preferred that expansion more than cross-country skiers. Recreationists in the sample who camped near their automobile moderately opposed limiting the number of people in heavily used areas. Mean scores from the other activity groups were significantly different ranging from neutral to slightly favor. In addition, the hikers and cross-country skiers favored that action more than the snowmobilers

Table 14. Preferences for possible management actions of respondents sampled in the Sierra National Forest (Winter, 1979).

Possible Management Actions	Very Strongly Favor (+4) Percent[a]	Strongly Favor (+3) Percent[a]	Moderately Favor (+2) Percent[a]	Slightly Favor (+1) Percent[a]	Neutral (0) Percent[a]	Slightly Oppose (-1) Percent[a]	Moderately Oppose (-2) Percent[a]	Strongly Oppose (-3) Percent[a]	Very Strongly Oppose (-4) Percent[a]	Number of Respondents
Develop a snow play area for tubing, etc.	29	18	17	11	16	2	2	2	3	598
Expand the present boundaries of China Peak Ski Area to provide more downhill skiing	37	10	12	7	20	3	3	3	6	612
Provide winter camping facilities at Huntington Lake	24	18	17	11	18	3	2	2	5	614
Encourage greater lift and trail capacity within the present boundaries of China Peak Ski Area	30	12	14	9	22	2	3	2	5	613
Increase parking facilities in heavily used areas	20	11	26	13	11	4	5	5	5	624
Provide winter camping facilities along State Highway 168	19	17	18	11	20	3	3	3	7	615
Redistribute use to lightly used areas	13	18	23	12	15	4	5	3	7	607
Limit the number of people in heavily used areas	15	12	18	13	11	8	8	5	10	619

[a]Percentages are based on the total number of respondents answering each possible management action.

and sightseers. Similar relationships are evident in the other three management actions included in Table 15.[20]

To better show the relationship between the major winter activities without interaction from other activities, a separate Student-Newman-Keuls test was performed on the snowmobilers, cross-country skiers, and downhill skiers. Table 16 lists the six management actions showing differences between the mean for those activity groups. Consistently, the cross-country skiers favored the management actions less than the snowmobilers. The only action that cross-country skiers favored more than snowmobilers was the limitation on the number of people in heavily used areas. Downhill skiers preferred the actions related to increased downhill skier capacity or area, and generally were between snowmobilers and cross-country skiers on their preferences for the other actions.

Opinions of Users Residing in Different Areas of California. A Student-Newman-Keuls test was also performed on the eight management actions for groups of respondents living in different parts of California. Only one significant difference was found on the management items between sampled recreationists visiting the SNF from Fresno, San Francisco, Los Angeles, or local areas. Table 17 specifies that visitors from Fresno favored the development of a snow-play area significantly more than recreationists from the Los Angeles basin. The lack of differences on any of the seven other management items indicates that, as a group, people visiting the SNF from different parts of California do not have different preferences for any of the management actions. Variation appears to be as high within the individual groups as between them.

---

[20]Table C-1 in Appendix C contains a full breakdown on each management action of the mean, standard deviation, and number of respondents for each most important activity group.

Table 15. Management items showing significant differences between mean responses of groups based on most important activity of respondents sampled in the Sierra National Forest (Winter, 1979).

Possible Management Actions	Activity Groups 1 Snow-mobiling (N=15) Mean[b]	2 Downhill Skiing (N=181)[a] Mean[b]	3 Cross-Country Skiing (N=113)[a] Mean[b]	4 Fishing (N=99)[a] Mean[b]	5 Camping Near Auto (N=19)[a] Mean[b]	6 Hiking/ Camping Away From Auto (N=51)[a] Mean[b]	7 Sightseeing/ Getting Away (N=41)[a] Mean[b]	Groups That Differ Significantly[c]
Expand the present boundaries of China Peak Ski Area to provide more downhill skiing.	1.9	3.4	0.3	1.0	1.4	1.4	1.4	2>1,6,7,5,4,3 1>3
Provide winter camping facilities at Huntington Lake.	2.5	1.5	1.6	1.2	2.5	1.9	1.6	1,5>4
Encourage greater lift and trail capacity within the present boundaries of China Peak Ski Area.	2.1	2.7	0.8	1.1	1.3	1.3	1.3	2>7,6,5,4,3
Increase parking facilities in heavily used areas.	2.9	1.7	0.9	1.6	1.4	-0.2	1.7	1>7,2,4,5,3>6
Limit the number of people in heavily used areas.	-0.5	0.6	1.2	0.8	-1.7	1.3	-0.3	6,3,4,2,7,1>5 6,3>7,1

[a]Calculations for each management item are based on at least the number of respondents indicated by N.

[b]Means are based on responses to a nine-point response format ranging from +4 (very strongly favor) to -4 (very strongly oppose). See Appendix C for a more detailed presentation of management item statistics for activity groups.

[c]This column indicates that each activity group (1-7) to the left of the ">" has a mean that is significantly greater than the mean of each group to the right, based on the Student-Newman-Keuls test ($p \leq .05$). These are the only significant differences between any of the activity group means for each management item.

Table 16. Management items showing significant differences between mean responses of snow-related recreation groups based on most important activity of respondents sampled in the Sierra National Forest (Winter, 1979).

Possible Management Actions	Activity Groups 1 Snowmobiling (N=15)[a] Mean[b]	2 Downhill Skiing (N=178)[a] Mean[b]	3 Cross-country Skiing (N=110)[a] Mean[b]	Groups That Differ Significantly[c]
Develop a snow play area for tubing, etc.	2.7	2.1	1.5	1>3
Expand the present boundaries of China Peak Ski Area to provide more downhill skiing.	1.9	3.4	0.3	2>1>3
Encourage greater lift capacity and trail capacity within the present boundaries of China Peak Ski Area.	2.1	2.7	0.8	2,1>3
Increase parking facilities in heavily used areas.	2.9	1.7	0.9	1>2,3
Redistribute use to lightly used areas.	2.4	.9	1.3	1>2,3
Limit the number of people in heavily used areas.	-.5	.6	1.2	3>1

[a]Calculations for each management item are based on at least the number of respondents indicated by N.

[b]Means are based on responses to a nine-point response format ranging from +4 (very strongly favor) to -4 (very strongly oppose). See Appendix C For a more detailed presentation of management item statistics for activity groups.

[c]This column indicates that each activity group (1-3) to the left of the ">" has a mean that is significantly greater than the mean of each group to the right, based on the Student-Newman-Keuls test ($p \leq .05$). These are the only significant differences between any of the activity group means for each management item.

Table 17. Management items showing significant differences between mean responses of groups based on residence of respondents sampled in the Sierra National Forest (Winter, 1979).

Possible Management Actions	Residence Groups[a] 1 Local (N=24)[b] Mean[c]	2 Fresno (N=340)[b] Mean[c]	3 San Francisco (N=18)[b] Mean[c]	4 Los Angeles (N=45)[b] Mean[c]	Groups That Differ Significantly[d]
Develop a snow play area for tubing, etc.	1.5	2.2	1.2	0.8	2>4

[a]Residence is based on zip code of respondent's permanent address.

[b]Calculations for this management item are based on the number of respondents indicated by N.

[c]Means are based on response to a nine-point response format ranging from +4 (very strongly favor) to -4 (very strongly oppose).

[d]This column indicates that each residence group (1-4) to the left of the ">" has a mean that is significantly greater than the mean of each group to the right, based on the Student-Newman-Keuls test ($p \leq .05$). These are the only significant differences between any of the residence group means for each management item.

Specific Management Actions Directed to Only Cross-Country Skiers and Snowmobilers

Since recent attention has been focused on conflicts between cross-country skiers and snowmobilers, ten separate management actions were developed for distribution to users in those activities. Only respondents specifying participation in either cross-country skiing or snowmobiling were included in this analysis. Combined responses of both groups indicated strong support for separate trails for skiers and snowmobilers, map boards posted at trailheads, trail identification markers, and winter trail maps (Table 18). Nine of the ten management actions were at least moderately favored by cross-country skiers and snowmobilers.

The dispersion of responses of cross-country skiers and snowmobilers answering in each category is shown in Table 19. The distribution of answers to the positive side of the scale supports the conclusion that the majority of the respondents favored the first nine management items and opposed the last one.

Table 20 lists only those possible management actions showing mean differences when the snowmobilers and cross-country skiers were separated into two groups. A Student's t-test ($p \leq .05$) was used to isolate the differences between the groups. Two of the management actions showing differences relate to the issue of cross-country skiers and snowmobilers sharing the same trail. While snowmobilers definitely favored separate trails, they were generally neutral or only slightly opposed to sharing a trail with ski tourers. Cross-country skiers were quite polar in their preferences. They very strongly favored separation of the activites and strongly opposed any trail sharing with snowmobilers.[21]

---

[21]A full breakdown of the means, standard deviations, and number of respondents for each of the ten management items by both activity groups can be found in Appendix C, Table C-2.

Table 18. Means and standard deviations for management items directed only to cross-country skiers and snowmobilers sampled in the Sierra National Forest (Winter, 1979).

Possible Management Actions	Mean[a]	S.D.[b]	Rank Order[c]
Provide separate trails for skiers and snowmobilers.	3.3	1.4	1
Post map boards at trailheads to identify trail routes and mileages.	3.1	1.4	2
Provide trail identification markers along the trail.	3.1	1.4	2
Develop winter trail maps.	3.0	1.5	4
Rate trails according to degree of difficulty of the terrain (i.e., skill required)	2.8	1.6	5
Provide information on snow conditions in the area.	2.7	1.6	6
Expand trail system in heavily used areas.	2.4	2.0	7
Develop shelters for day use or emergency overnight stays.	2.1	2.2	8
Develop a hut system for backcountry users who wish to stay overnight.	2.0	2.4	9
Combine skiers and snowmobilers on the same trails.	-3.1	1.9	10

[a]Means are based on responses to a nine-point response format ranging from +4 (very strongly favor) to -4 (very strongly oppose). Calculations for each management action are based on at least N=215 respondents.

[b]Standard deviation (S.D.) is a measure of variation in the responses around the mean score.

[c]Ranks are based on mean scores on the possible management actions, with tied scores given the same rank.

Table 19. Preferences for possible management actions directed only to snowmobilers and cross-country skiers sampled in the Sierra National Forest (Winter, 1979).[a]

Possible Management Actions	Very Strongly Favor (+4) Percent[b]	Strongly Favor (+3) Percent[b]	Moderately Favor (+2) Percent[b]	Slightly Favor (+1) Percent[b]	Neutral (0) Percent[b]	Slightly Oppose (-1) Percent[b]	Moderately Oppose (-2) Percent[b]	Strongly Oppose (-3) Percent[b]	Very Strongly Oppose (-4) Percent[b]	Number of Respondents
Provide separate trails for skiers and snowmobilers	72	11	7	4	5	1	1	0	1	221
Post map boards at trailheads to identify trail routes and mileages	55	22	12	7	4	1	0	1	1	222
Provide trail identification markers along the trail	54	20	14	7	4	1	0	1	1	221
Develop winter trail maps	50	25	12	6	5	1	0	0	1	220
Rate trails according to degree of difficulty of the terrain (i.e., skill required)	49	17	15	10	7	1	<1	1	1	223
Provide information on snow conditions in the area	48	16	18	7	9	1	1	1	1	215
Expand trail systems in heavily used areas	43	15	21	9	4	2	2	2	3	220
Develop shelters for day use or emergency overnight stays	36	20	17	9	8	1	3	2	5	220
Develop a hut system for backcountry users who wish to stay overnight	40	17	16	5	10	1	3	1	7	223
Combine skiers and snowmobilers on the same trails	2	1	4	1	4	5	6	8	71	222

[a]This analysis includes all respondents who indicated participation in either cross-country skiing or snowmobiling, regardless of their most important activity.

[b]Percentages are based on the total number of respondents answering each possible management action.

Table 20. Significant differences between group means on management actions directed only to cross-country skiers and snowmobilers sampled in the Sierra National Forest (Winter, 1979).[a]

Possible Management Actions	Snowmobilers (N=26)[b] Mean[c]	Cross-Country Skiers (N=175)[b] Mean[c]
Provide separate trails for skiers and snowmobilers	2.2	3.5
Develop a hut system for backcountry users who wish to stay overnight.	0.8	2.2
Combine skiers and snowmobilers on the same trails.	-0.8	-3.4

[a]This analysis includes all respondents who indicated participation in either cross-country skiing or snowmobiling (but not both), regardless of their most important activity. Significant differences are based on a Student's t-test ($p \leq .05$). These are the only significant differences found between these two activity groups on the possible management actions.

[b]Calculations for each management item are based on at least the number of respondents indicated by N.

[c]Means are based on response to a nine-point response format ranging from +4 (very strongly favor) to -4 (very strongly oppose). See Appendix C for a more detailed presentation of management item statistics for activity groups.

Management Actions Preferred by Users Recreating in Specific Areas

The relationship between winter SNF users' most important activity, location of recreation participation, and management action opinions are investigated in this section.

Zones (Areas) of Recreation Participation. Most of the SNF winter recreation participation reported by respondents visiting the study area is focused in five areas. Zones 3, 4, 5, 6, and 10 in Figure 3 account for over 90 percent of the recorded recreation participation. This information was acquired from a subgroup of the winter SNF sample. These respondents were asked to indicate on a map one specific area where they participated the most in their "most important" activity. The percentage and number of respondents engaging in recreation in each zone are listed in Table 21. Zones 4 and 5 were the most popular winter use zones, whereas zones 2, 9, 12, 13, 16, and 23 were mentioned by one percent or less of the recreationists. A further division of the zone information is displayed in Table 22 where the most important activities are listed by the specified recreation zone to give an indication of the distribution of activity participation across the study area. Cross-country skiing in zones 4 and 5, fishing in zones 3 and 4, and downhill skiing in zone 5 characterize most of the major activity participation by zone.

Differences on Management Actions by Area of Recreation Participation. Tables 23-25 show mean differences on the possible management actions preferred by winter users recreating in specific zones. A Student-Newman-Keuls test was used in Table 23 to discern the overall mean differences between recreationists in all zones. Zone 5 was divided into zones 5a and 5b to separate downhill skiers from all other users of zone 5. Three management actions revealed differences. Downhill skiers in zone 5a strongly favor the

Figure 3. Use Zones.

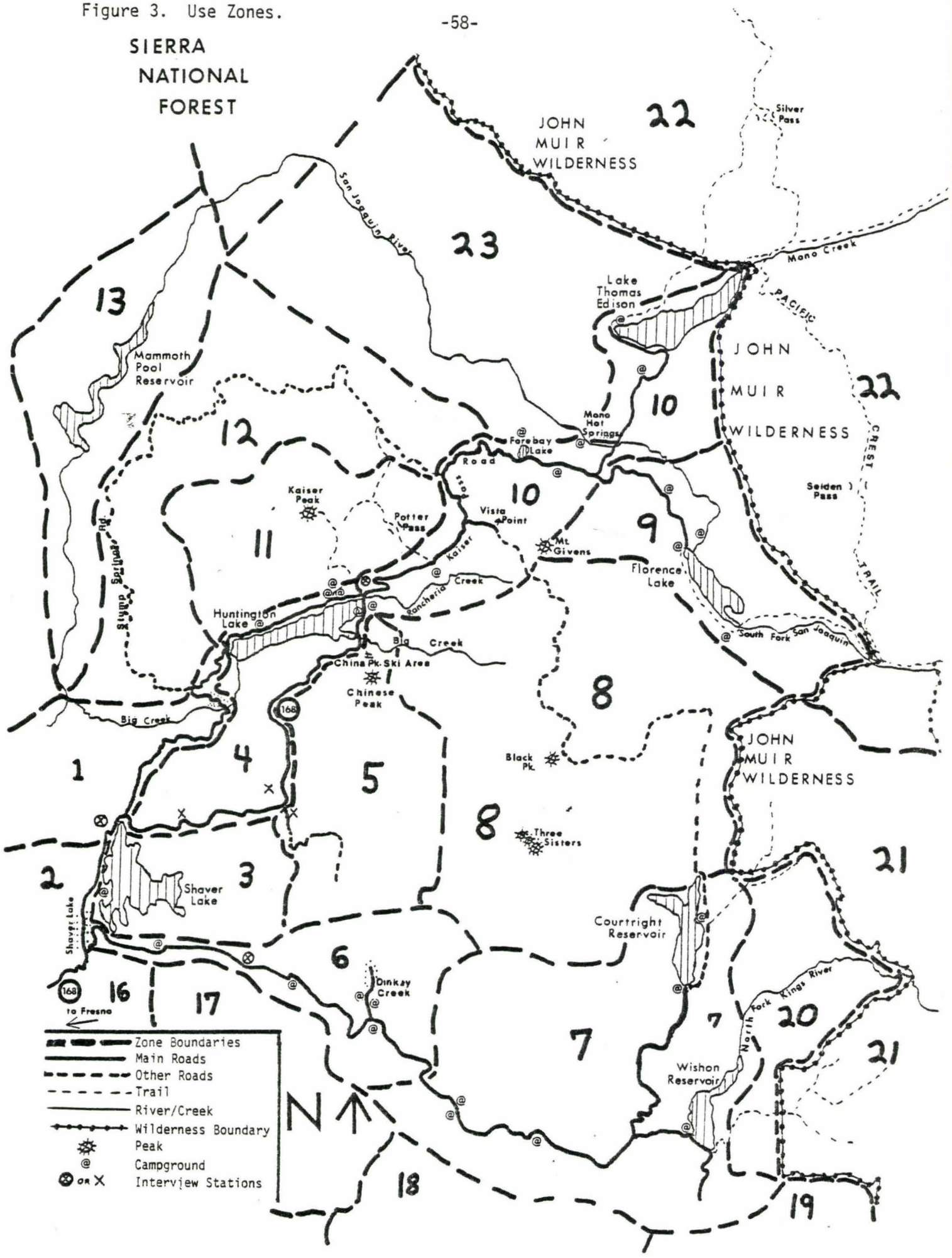


Table 21. Number of sampled respondents indicating each zone as the area where they engaged in their most important activity in the Sierra National Forest (Winter, 1979).

Zone[a]	Number of Respondents	Percentage[b]
1	6	2
2	1	<1[c]
3	27	9
4	64	21
5	150	48
6	18	6
8	8	3
9	3	1
10	22	7
11	5	2
12	3	1
13	1	<1[c]
16	1	<1[c]
23	1	<1[c]

[a]Zones which were not indicated as a site of a most important activity for any of the respondents are not included in this table.

[b]Percentages are calculated based on N=310 respondents answering this question.

[c]Less than 1 percent.

Table 22. Number of respondents participating in each most important activity within each zone of the Sierra National Forest (Winter, 1979).

Most Important Activity	Zone[a]														
	1	2	3	4	5	6	8	9	10	11	12	13	16	23	Total
Cross-Country Skiing			2	26	26	1	1	1	6	1	1				65
Snowmobiling					7										7
Sledding, Tobogganning			1	1											2
Snow Play			1		2				1						4
Camping Near Auto				2		1			1		1				5
Camping Away From Auto			1	1		3	1								6
Hiking/Walking			5	2	3	2			3						15
Fishing	1		11	17	2	5	2	2	7	2		1	1	1	52
Sightseeing/Auto Driving			2	3	1	1			1						8
Photography	1			1											2
Hunting			2		2	1				1	1				7
Wildlife Viewing				1					1						2
4-Wheel Driving					1	2	2			1					6
Downhill Skiing	1		1	2	104		2		1						111
Getting Away	2		1	3	1	1									8
Exploring				1					1						2
Visiting Friends/Relatives	1	1		1											3
Other				3	1	1									5
TOTAL	6	1	27	64	150	18	8	3	22	5	3	1	1	1	310

[a]Zones which were not indicated as a site of a most important activity for any of the respondents are not included in this table.

Table 23. Management items showing significant differences between mean responses of groups based on zone in which respondents engaged in their most important activity in the Sierra National Forest (Winter, 1979).

Possible Management Actions	Zone[a] 3 (N=25)[b] Mean[c]	4 (N=55)[b] Mean[c]	5a Downhill Skiers (N=101)[b] Mean[c]	5b Other Users (N=46)[b] Mean[c]	6 (N=16)[b] Mean[c]	10 (N=22)[b] Mean[c]	Zones That Differ Significantly[b]
Redistribute use to lightly used areas	1.3	2.0	0.9	1.1	0.8	0.1	4>10
Expand the present boundary of China Peak Ski Area to provide more downhill skiing	1.5	0.6	3.4	0.4	0.5	1.5	5a>10,3,4,6,5b
Encourage greater lift and trail capacity within the present boundaries of China Peak Ski Area	1.2	0.8	2.6	0.5	0.7	1.6	5a>3,4,6,5b

[a]Zones having fewer than 15 respondents are not included in this analysis.

[b]Calculations are based on at least the number of respondents indicated by N.

[c]Means are based on responses to a nine-point response format ranging from +4 (very strongly favor) to -4 (very strongly oppose).

[d]This column indicates that each zone (3-10) to the left of the ">" has a mean that is significantly greater than the mean of each zone to the right, based on the Student-Newman-Keuls test ($p \leq .05$). These are the only significant differences between any of the zone means for each management item.

expansion of boundaries and lift capacity at the China Peak Ski Area, while other users in zone 5 and users in all other zones were neutral or only slightly in favor of those actions. The actions recommending a redistribution of use to lightly used areas was favored more by recreationists in zone 4 than zone 10.

Differences between means in Tables 24 and 25 were tested using a Student's t-test ($p \leq .05$). Cross-country skiers' management action preferences from zone 4 are compared to those from zone 5 in Table 24. Four of the 18 management items reveal significant differences illustrating that cross-country skiers in zone 4 favored the management actions more than cross-country skiers in zone 5. Zone 4 cross-country skiers preferred more information on snow conditions and better identification of trails. In addition, concern about use in zone 4 encouraged those users to favor redistribution of use and expansion of the trail system.

Fishermen recreating in zone 3 differ from those who fished in zone 4 on only two of the eight management recommendations (Table 25). Both of these management actions focus on the distribution of recreation participation. Consistent with cross-country skier responses from zone 4, fishermen from zone 4 favored redistribution of use to other areas. Also, zone 4 fishermen favored a limitation on use in heavily used areas, whereas fishermen from zone 3 oppose that limitation.

Table 24. Management items showing significant differences between mean responses of groups of cross-country skiers in Zones 4 and 5 respectively, sampled in the Sierra National Forest (Winter, 1979).[a]

Possible Management Actions	Zone 4[b] (N=25)[b] Mean[c]	Zone 5[b] (N=25)[b] Mean[c]
Redistribute use to lightly used areas	2.5	0.8
Provide trail identification markers along the trail	3.4	2.5
Expand the trail system in heavily used areas	2.7	1.5
Provide more information on snow conditions in the area	3.1	1.9

[a]These groups include only respondents who indicated cross-country skiing as their most important activity. Significant differences are based on a Student's t-test ($p \leq .05$).

[b]Calculations are based on at least the number of respondents indicated by N.

[c]Means are based on responses to a nine-point response format ranging from +4 (very strongly favor) to -4 (very strongly oppose).

Table 25. Management items showing significant differences between groups of fishermen in zones 3 and 4 respectively, sampled in the Sierra National Forest (Winter, 1979).[a]

Possible Management Actions	Zone 3 (N=11)[b] Mean[c]	Zone 4 (N=9)[b] Mean[c]
Limit the number of people in heavily used areas	-0.5	1.6
Redistribute use to lightly used areas	0.3	2.6

[a]These groups include only respondents who indicated fishing as their most important activity. Significant differences are based on a Student's t-test ($p \leq .05$).

[b]Calculations are based on at least the number of respondents indicated by N.

[c]Means are based on responses to a nine-point response format ranging from +4 (very strongly favor) to -4 (very strongly oppose).

IV. CHARACTERISTICS AND PREFERENCES OF SUMMER USERS

Results of two questionnaires sent to summer SNF users are discussed in this section. Question formats, statistical procedures, and analyses used for the summer study are identical in many respects to the winter study. At the risk of redundancy, similar procedures and results presented in this section duplicate discussion from the winter results. This allows the reader to study each section independently without having to refer to previous sections. The two summer mailback questionnaires provided information about user characteristics and preferences. The summary of user characteristics focuses on age, sex, education, cultural background, previous visits to the study area, etc. User preferences include, but are not limited to, activity preferences, recreation experience preferences, management action preferences, and preferences concerning conditions of the SNF.

Mail Questionnaire Response

Mailback questionnaire response rates were not as high as some previous studies, but considered adequate to represent the opinions of SNF summer users. Two questionnaires were mailed during the spring of 1980 to randomly selected subgroups of the summer sample. Sixty-four percent of the summer buff questionnaires and 69 percent of the summer yellow questionnaires were returned ready for keypunching (Table 26). Questionnaires categorized as "non-deliverable" never reached the appropriate address and accounted for 2 percent and 4 percent of the respective samples. The effective sample size represents the number of questionnaires actually reaching the intended recipient.

Table 26. Results of the Sierra National Forest Questionnaire mailings (Summer 1979).[a]

Questionnaires[b]	Sample Size	Non-Deliverable	Effective Sample Size[c]	Returned Complete	Response Rate Percent[d]
Summer Buff	913	35	878	566	64
Summer Yellow	709	34	675	464	69

[a]The questionnaire for summer users was sent through the postal system in the spring of 1980.

[b]Copies of the questionnaires can be found in Appendix A, Figure A-4 (Summer Buff) and Figure A-5 (Summer Yellow).

[c]Effective sample size reflects the number of people actually receiving the questionnaire.

[d]Percentage calculated by dividing the number of returned questionnaires by the effective sample size.

To help confirm that the responses documented in this section reflected the opinions of the SNF summer users sampled during 1979, mail questionnaire respondents were compared to non-respondents. Since both groups were initially contacted during the exit interviewing, selected variables from the exit interview data were used to compare the two groups. Overrepresentation or underrepresentation occurs if the groups have dissimilar characteristics. Given the overall sample had a 49 percent response rate,[22] we would expect that 49 percent of each subgroup or subcategory would be represented in the sample returning the questionnaire. If not, then the sample is over-represented or underrepresented for the characteristic being considered. A 10 percent difference from the expected value constituted a discrepancy large enough to report.

The six variables selected from the exit interview data for the respondent/non-respondent comparison included: (1) number of people in the party; (2) number of people in the vehicle; (3) previous visits to the study area; (4) vehicle type of recreationists; (5) primary recreation activity; and (6) total hours of recreation. Similar to the winter results, the summer respondent and non-respondent groups showed discrepancies from the percentages on two variables, primary recreation activity and total hours of recreation. Campers near and away from the automobile and hikers are all overrepresented in the sample responding to the mailback questionnaire (Table 27). Sightseers are underrepresented by approximately 20 percent.

Mailback questionnaire respondents spent more time recreating in the study area than members of the non-respondent group. The mean hours of recreation participation for the overall sample was 52 hours. The respondent

---

[22]That response rate is based on the people who responded to the mailback questionnaire and had accessible exit interview data. It is different than the response rate listed in Table 26.

Table 27. Comparison of the actual to the expected percentage of Sierra users responding to the mail questionnaire categorized by activity groups (Summer, 1979).[a]

Variables	Respondents		Non-Respondents	
	Actual Percent[b]	Expected Percent[c]	Actual Percent[b]	Expected Percent[c]
Primary Recreation Activity				
Camping Near Auto	64	49	36	51
Camping Away From Auto	69	49	31	51
Hiking	59	49	41	51
Sightseeing	29	49	71	51

[a]Only variables exhibiting a 10 percent or greater discrepancy between the actual and expected percentages are included in this table. All data analyzed from the exit interview form.

[b]Actual percentages reflect the portion of the total exit interview sample in each primary recreation activity that did respond (or did not respond) to the mailback questionnaire.

[c]The expected percentages reflect the portion of the total exit interview sample in each primary recreation activity that should have responded (or not responded) to the mailback questionnaire based on the overall response rate to the mailback questionnaire. This percentage is different from the percentage shown in Table 26 since not all people receiving a mail questionnaire had available exit interview data.

group recreated an average of 63 hours, while the non-respondents spent 42 hours.

One interpretation of the data described above is that the respondent group appears to have people more committed to recreation in the SNF than the non-respondent group. The discrepancy in average total recreation hours could be caused by the overrepresentation and underrepresentation in certain activity groups. Sightseers generally spend less time recreating than people who camp or hike. The respondent group with too few sightseers and too many campers and hikers have longer hours of recreation participation.

Given the overall mailback questionnaire sample sizes and the number of variables analyzed above, the discrepancy from the expected percentages in the four activity groups is not expected to bias the overall summaries. Even so, it is recommended as a good practice, that the reader be familiar with and refer back to the sample characteristics when reviewing data summarizing all the mailback questionnaire responses.

Sample Summary Statistics

Characteristics of Visitors to the SNF

The demographic characteristics of the summer users studied are presented in Table 28. The average (mean) age of summer SNF respondents was over 39 years. Two age groupings, 26-35 and 36-50, accounted each for 30 percent of the sample. Eighty-two percent of the respondents was male.[23]

---

[23]The summer sample, similar to the winter sample, overrepresents male recreationists. Sampling people in vehicles as they exit the study area provides a difficult setting for randomly selecting respondents. Although our sampling procedure is specifically designed to get a representative cross section of all eligible recreationists in a vehicle, invariably female users do not end up as often as male users in our name and address sample because: (1) males quickly volunteer the answers; (2) females seek help from the males; or (3) the male name is usually given for the mail return questionnaire.

Table 28. Age, sex, education, size of place of permanent residence and cultural backgrounds of respondents sampled in the Sierra National Forest (Summer, 1979).

Age (N=953)	Age	Percent	
	Under 18	1	
	18 - 25	16	Mean = 39 years
	26 - 35	30	
	36 - 50	30	
	51 - 65	18	
	Over 65	4	
Sex (N=959)	Sex	Percent	
	Male	82	
	Female	18	
Education (N=956)	Years of Formal Schooling	Percent	
	Under 13	27	
	13 - 16	50	Mean = 15 years
	Over 16	23	
Size of Place of Permanent Residence (N=937)	Population	Percent	
	500,000 or more	12	
	100,000-500,000	34	
	25,000-100,000	24	
	5,000-25,000	16	
	Below 5,000	5	
	Rural	9	
Cultural Background (N=938)	Cultural Background	Percent	
	Indian	1	
	Hispanic	3	
	Oriental	1	
	White	93	
	Black	1	
	Other	1	

75 percent of the sample had at least some college or technical education, with the average schooling equivalent to almost three years of college. The majority of the respondents lived in communities between 25,000 and 500,000 total population. Only hispanic and white respondents accounted for more than 1 percent of the sample.

Residential locations based on zip code groupings are shown in Table 29. Twenty-seven percent of the respondents were from Los Angeles or San Francisco. Fresno, the other major metropolitan area, contributed 42 percent of the respondents. During the summer, few out-of-state recreationists (3 percent) visited the SNF study area.

Tables 30-32 give an indication of the familiarity the respondents have with the SNF. The overall number of previous summer visits by respondents from June 1978 to the spring of 1980 is listed in Table 30. People who visited the area previously, two or three times, represented almost 30 percent of the mailback questionnaire sample. Also, 40 percent of the summer visitors were very familiar with the area (greater than seven visits).

A majority of the respondents indicated familiarity with one of the two wilderness areas located in the study area (Tables 31 and 32). Fifty-eight percent of the respondents had visited the John Muir Wilderness (Table 31) at least once in the previous five years, while 51 percent of the people sampled had been to the Kaiser Wilderness Area (Table 32). Also, about 25 percent did not know whether or not they had gone to the Kaiser Wilderness Area.

Recreation Activities of SNF Users

Seventy-eight percent of the respondents fished in the SNF, and hiking, sightseeing, and camping near the auto had participation rates by more than

Table 29. Residence locations of respondents sampled in the Sierra National Forest (Summer, 1979).

Residence Locations[a]	Number of Respondents	Percent[b]
Local[c]	35	4
Fresno	397	42
San Francisco	65	7
Los Angeles	185	20
Other California	243	26
Out-of-State	24	3

[a]Residence is based on zip code of respondent's permanent address.

[b]Percentage values are based on N=949 respondents with valid zip codes.

[c]Local includes respondents from communities within and in close proximity to the Sierra National Forest.

Table 30. Number of previous summer visits to the Sierra National Forest of respondents sampled (Summer, 1979).

Number of Previous Visits[a]	Number of Respondents	Percent[b]
1	126	13
2 - 3	266	28
4 - 6	186	20
7 - 15	167	18
16 - 30	100	11
Over 30	109	11

[a]Number of previous summer visits to the Sierra National Forest in the past year.

[b]Percentage values are calculated based on N=954 respondents answering this question.

Table 31. Summer Sierra National Forest user response to the question, "Have you visited the John Muir Wilderness Area during the past five years?" Respondents sampled in the Sierra National Forest (Summer, 1979).

Visited John Muir Wilderness?	Number of Respondents	Percent[a]
Yes	544	58
No	288	30
Don't Know	112	12

[a]Percentage values are based on N=944 respondents answering this question.

Table 32. Summer Sierra National Forest user response to the question, "Have you visited the Kaiser Wilderness Area during the past five years?" Respondents sampled in the Sierra National Forest (Summer, 1979).

Visited Kaiser Wilderness?	Number of Respondents	Percent[a]
Yes	487	51
No	234	25
Don't Know	225	24

[a]Percentage values are based on N=947 respondents answering this question.

two-thirds of the respondents. Table 33 delineates activity participation in those activities and all other recreation activities checked by respondents on the summer questionnaires.

After indicating all recreation activities during the summer, respondents listed the one "most important" activity they spent the most time doing during their visits to the SNF. Responses to the "most important" activity question form the basis for most of the comparison analyses incorporated in this report. The terminology "most important" activity and the question asked of respondents are important to understand the meaning of the comparisons.

Fishing and hiking were both important activities (Table 34). Most of the activities requiring substantial investments in equipment had low participation levels and were not often designated as a most important activity.

The number of previous visits by respondents in selected most important activity categories is illustrated in Table 35. Fishermen appear to be the most experienced recreationists based on their number of visits to the study area. Hikers and both categories of campers have visited the SNF about the same number of times since June of 1978.

In Table 36 the relationships between the respondents' most important activity and visitation to either the John Muir or Kaiser Wilderness Areas are examined. People in the activity group camping away from auto had the highest percentage of visits to the John Muir and Kaiser Wilderness Areas. Less than half the respondents whose most important activity was camping near auto had gone to either of the wilderness areas. Thirty-two percent of the respondents from that same group did not know whether they had or had not visited the Kaiser Wilderness Area.

Table 33. Number of respondents sampled indicating participation in specific activities in the Sierra National Forest (Summer, 1979).[a]

Activity	Number of Respondents[b]	Percent[c]	Rank Order[d]
Fishing	749	78	1
Hiking	718	74	2
Sightseeing	621	64	3
Camping Near Auto	615	64	4
Swimming	548	57	5
Picnicking	470	49	6
Camping Away From Auto	403	42	7
Boating	401	42	8
4-Wheel Driving	176	18	9
Waterskiing	148	15	10
Sailing	120	12	11
Motorcycling	118	12	12
Canoeing	76	8	13

[a]Since recreationists could participate in more than one activity, the percent column will not total 100 percent.

[b]Number of respondents sampled who indicated recreation participation in the listed activity.

[c]Percentage values are calculated based on N=967 respondents answering this question.

[d]Activities are ranked in descending order based on the number of respondents in each activity. Tied scores are given the same rank.

Table 34. The most important activity of the respondents sampled in the Sierra National Forest (Summer, 1979).

Most Important Activity[a]	Number of Respondents[b]	Percent[c]
Fishing	264	29
Hiking	180	20
Camping Near Auto	131	14
Camping Away From Auto	117	13
Sightseeing	54	6
Sailing	37	4
Hunting	21	2
4-Wheel Driving	18	2
Swimming	14	2
Motorcycling	12	1
Boating	12	1
Other Activities	65	7

[a]Activities are listed in descending order based on the number of respondents. Activities which were not listed as a most important activity by any of the respondents are not included in this table.

[b]Number of respondents sampled who listed that activity as the one they spend the most time doing during their visits to the Sierra National Forest.

[c]Percentage values are calculated based on N=925 respondents answering this question.

Table 35. Percentage of recreationists in each most important activity group by their total number of previous summer visits, for respondents sampled in the Sierra National Forest (Summer, 1979).

Number of Visits[a]	Camp Near Auto (N=127)[b]	Camp Away from Auto (N=117)[b]	Hiking (N=179)[b]	Fishing (N=258)[b]
	Percent	Percent	Percent	Percent
1	17	14	18	9
2 - 3	35	28	32	25
4 - 6	21	21	22	21
7 - 15	17	18	16	20
16 - 30	9	9	5	13
Over 30	2	9	8	12

[a]Number of previous summer visits to the Sierra National Forest in the past year.

[b]Percentage values were calculated based on the number of respondents (indicated by N) in each most important activity category answering this question.

Table 36. Percentage of summer Sierra National Forest user response to question, "Have you visited the John Muir and/or the Kaiser Wilderness Areas during the past five years?". Question responses were grouped by the most important activity of respondents sampled in the Sierra National Forest (Summer, 1979).

Wilderness Area	Camping Near Auto (N=127)[a]			Camping Away From Auto (N=116)[a]			Hiking (N=178)[a]			Fishing (N=255)[a]		
	Percent			Percent			Percent			Percent		
	Yes	No	Don't Know	Yes	No	Don't Know	Yes	No	Don't Know	Yes	No	Don't Know
John Muir	49	37	14	83	12	5	65	23	12	52	36	12
Kaiser	42	26	32	62	12	26	52	23	26	55	25	20

[a]Percentage values are based on at least the number of respondents (indicated by N) in each most important activity group.

Recreation Experience Preferences (REP's)

Two different question formats (adds-detracts and importance) were used in this study to determine the REP's of sampled recreationists visiting the SNF during the summer of 1979. Consistent with the discussion of recreation experiences in the winter study, this section of the report presents the analysis of the REP scales using the adds-detracts format (refer to footnote 18 for more details). The adds-detracts format asked respondents to rate whether each REP item would add to or detract from the level of satisfaction they would probably realize if they visited the same area next summer and participated in their listed most important activity.

Several different levels of data specificity and statistics for data analysis are used in this report to document the REP's of summer SNF recreationists. This discussion overviews a subset[24] of this information including: (1) overall REP's of the summer SNF sample; (2) REP's of summer recreationists participating in selected most important activities; (3) differences between REP scores of summer users participating in different activities; and (4) differences between REP scores of summer visitors to the SNF coming from different areas of California.

Overall REP's of Summer SNF Users

The 56 REP items included on the summer mail questionnaires were grouped according to previous research into 43 scales and 19 domains (Table 37).

---

[24]Comprehensive documentation of the summer REP analyses are in Appendix D, Tables D-1 to D-4. Included in these tables are the means, standard deviations, and number of respondents for the REP items, scales, and domains for all sampled summer recreationists in the SNF. Detailed REP analyses are also available for all recreationists categorized by most important activity. Additionally, Appendix D contains the above REP documentation for SNF respondents receiving the questionnaire with the importance format.

Table 37. Recreation experience preference domain and scale (offset to the right) means for those respondents sampled in the Sierra National Forest using the "adds to-detracts from satisfaction" response format (Summer, 1979).

Recreation Experience Preferences Domain Scale	Mean[a] Domain Scale		Rank of Scale Means[b]
1. Relationships with Nature	3.4		
Scenery		3.5	1
General Nature Experience		3.4	2
2. Escape Personal-Social Pressure	3.0		
Tension Release		2.7	9
Slow Down Mentally		2.7	9
Escape Role Overloads		3.4	2
Escape Daily Routine		3.2	4
3. Exercise/Physical Fitness	2.7		
Exercise/Physical Fitness		2.7	9
4. Escape Physical Pressure	2.7		
Tranquility		2.8	8
Seek Open Space		3.0	6
Privacy		1.6	31
Escape Crowds		3.1	5
Escape Physical Stressors		2.9	7
5. Family Togetherness	2.5		
Family Togetherness		2.5	14
6. Being with People	2.4		
Being with Friends		2.2	17
Being with Similar People		2.6	12
7. General Learning	2.4		
General Learning		2.5	13
Exploration		2.5	13
Geography of the Area		1.9	27
Learn about Nature		2.6	12
8. Physical Rest	2.2		
Physical Rest		2.2	17
9. Security	2.2		
Social Security		2.2	17
10. Nostalgia	2.1		
Nostalgia		2.1	20
11. Equipment	2.1		
Equipment		2.1	20
12. Reflect on Personal Values	1.8		
Spiritual		1.9	26
Introspection		1.6	31
13. Achievement	1.7		
Reinforcing Self Image		2.0	23
Social Recognition		.7	38
Skill Development		2.0	23
Competence Testing		2.0	23
Seeking Stimulation		2.0	23
14. Creativity	1.6		
Creativity		1.6	31
15. Temperature	1.6		
Temperature		1.6	31
16. Leadership/Autonomy	1.5		
Independance		2.1	20
Autonomy		1.5	35
Control Power		1.8	29
Teaching-Sharing Skills		1.7	30
Leading Others		.6	39
17. Meeting-Observing New People	.5		
Meeting New People		.9	35
Observing Other People		.1	41
18. Risk Taking	.4		
Risk Taking		-.1	43
Risk Moderation		.8	37
Risk Avoidance		.6	39
19. Escaping Family	.1		
Escaping Family		.1	41

[a]Means are based on responses to a nine-point response format ranging from +4 (very strongly adds) to -4 (very strongly detracts). Calculations for each domain or scale are based on at least N=488 respondents. See Appendix D for a more detailed presentation of REP statistics.

[b]Ranks are based on mean scores (on the REP scales) with tied scores given the same rank.

The REP scale scores, like the individual item scores, could vary from +4 (adds to satisfaction) to -4 (detracts from satisfaction). All scales except one were perceived to add to respondents' satisfaction. The means ranged from a low on the Risk Taking scale of -0.1 (i.e., neutral) to a high of +3.5 (i.e., strongly adds to satisfaction) on the Scenery scale. The REP scales were ordered from highest to lowest mean to give a better indication of the relative importance of all the scales. Scales with the same means were assigned equivalent ranks, and subsequent ranks were adjusted to reflect the number of scales with higher ranks. Ranked number one and two were scales in the Relationships with Nature domain (Scenery and General Nature Experience scales). Eight of the nine scales ranked the next highest deal with getting away from physical and social pressures of everyday life. Risk Taking, Observing Other People, and Escaping Family were ranked last with means indicating that these experiences neither added to nor detracted from satisfaction.

REP Differences Between User Groups

The means on the scales and domains of respondents in each major most important activity group are listed in Table 38. Only camping near auto, camping away from auto, hiking, and fishing had sample sizes large enough for this analysis. The Scenery and General Nature Experience scales continue to show the highest means and ranks. The mean for hikers on the Scenery scale was 3.7. This is the highest mean in this study and as high as any mean measured in previous research. The Risk Taking (for campers near the automobile) and Observing Other People (for campers away from the automobile) scales had means indicating that respondents perceived those scales slightly detracted from satisfaction at -0.8.

Table 38. Recreation experience preference domain (D) and scale (S) (offset to the right) means for those respondents sampled in the Sierra National Forest using the "adds to-detracts from satisfaction" response format, grouped by their most important activity (Summer, 1979)

Recreation Experience Preferences Domain Scale	Most Important Activity Groups 1 Camping Near Auto (N=74)[a] Mean[b] D S	Rank of Scale Means[c]	2 Camping Away From Auto (N=66)[a] Mean[b] D S	Rank of Scale Means[c]	3 Hiking (N=95)[a] Mean[b] D S	Rank of Scale Means[c]	4 Fishing (N=110)[a] Mean[b] D S	Rank of Scale Means[c]	Groups That Differ Significantly[d]
1. Relationships with Nature	3.3		3.6		3.6		3.4		
Scenery	3.4	1	3.6	1	3.7	1	3.4	1	3>4
General Nature Experience	3.3	2	3.6	1	3.5	2	3.3	3	2>1
2. Escape Personal-Social Pressure	2.9		3.1		3.0		3.0		
Tension Release	2.7	8	2.9	10	2.8	12	2.6	13	NSD
Slow Down Mentally	2.6	11	2.8	11	2.6	14	2.8	9	NSD
Escape Role Overloads	3.2	3	3.6	1	3.4	3	3.4	1	NSD
Escape Daily Routine	3.2	3	3.2	6	3.1	6	3.2	4	NSD
3. Exercise/Physical Fitness	2.2		3.1		3.0		2.6		
Exercise Physical Fitness	2.2	18	3.1	7	3.0	8	2.6	13	2,3>4>1
4. Escape Physical Pressure	2.4		3.0		2.9		2.7		
Tranquility	2.7	8	3.0	9	3.0	8	2.9	8	NSD
Seek Open Space	2.8	5	3.3	5	3.3	4	3.0	7	2,3>1
Privacy	1.0	37	2.0	26	1.9	26	1.4	35	2,3>4,1
Escape Crowds	2.8	5	3.4	4	3.3	4	3.2	4	2>1
Escape Physical Stressors	2.7	8	3.1	7	3.1	6	3.1	6	NSD
5. Family Togetherness	2.8		2.2		2.0		2.8		
Family Togetherness	2.8	5	2.2	19	2.0	22	2.8	9	4,1>2,3
6. Being with People	2.3		2.5		2.1		2.5		
Being with Friends	2.1	20	2.2	19	1.8	28	2.3	20	NSD
Being with Similar People	2.5	13	2.7	13	2.3	16	2.7	12	NSD
7. General Learning	2.3		2.6		2.7		2.4		
General Learning	2.5	13	2.7	13	2.7	13	2.5	16	NSD
Exploration	2.4	15	2.6	15	2.9	10	2.5	16	3>4,1
Geography of Area	1.8	24	2.3	16	2.2	19	1.8	29	NSD
Learn About Nature	2.4	15	2.8	11	2.9	10	2.8	9	3>1
8. Physical Rest	2.6		2.0		1.6		2.4		
Physical Rest	2.6	11	2.0	26	1.6	33	2.4	18	1,4>3
9. Security	2.4		2.2		2.1		2.3		
Social Security	2.4	15	2.2	19	2.1	21	2.3	20	NSD
10. Nostalgia	1.9		1.7		1.9		2.6		
Nostalgia	1.9	22	1.7	31	1.9	26	2.6	13	4>1,3,2
11. Equipment	2.2		2.0		1.7		2.4		
Equipment	2.2	18	2.0	26	1.7	32	2.4	18	4>3
12. Reflect on Personal Values	1.7		2.0		1.9		1.7		
Spiritual	2.1	20	2.2	19	2.0	22	1.9	26	NSD
Introspection	1.4	32	1.8	30	1.8	28	1.5	33	NSD

Table 38. Continued.

Recreation Experience Preferences Domain Scale	Most Important Activity Groups 1 Camping Near Auto (N=74)[a] Mean[b] D S	Rank of Scale Means[c]	2 Camping Away From Auto (N=66)[a] Mean[b] D S	Rank of Scale Means[c]	3 Hiking (N=95)[a] Mean[b] D S	Rank of Scale Means[c]	4 Fishing (N=110)[a] Mean[b] D S	Rank of Scale Means[c]	Groups That Differ Significantly[d]
13. Achievement	1.3		1.9		1.8		1.8		
Reinforcing Self Image	1.7	25	2.2	19	2.3	16	1.8	29	3>1
Social Recognition	.5	39	.7	37	.5	39	.9	38	NSD
Skill Development	1.5	28	2.1	25	2.0	22	2.3	20	4,2,3>1
Competence Testing	1.4	32	2.2	19	2.2	19	2.2	23	2,4,3>1
Seeking Stimulation	1.5	28	2.3	16	2.3	16	2.0	25	3,2,4>1
14. Creativity	1.5		1.7		2.0		1.6		
Creativity	1.5	28	1.7	31	2.0	22	1.6	32	NSD
15. Temperature	1.9		1.3		1.3		1.8		
Temperature	1.9	22	1.3	35	1.3	35	1.8	29	NSD
16. Leadership/Autonomy	1.3		1.6		1.6		1.6		
Independence	1.6	26	2.3	16	2.4	15	2.1	24	3,2,4>1
Autonomy	1.4	32	1.5	33	1.6	33	1.5	33	NSD
Control Power	1.5	28	2.0	26	1.8	28	1.9	26	NSD
Teaching-Sharing Skills	1.6	26	1.4	34	1.8	28	1.9	26	NSD
Leading Others	.4	41	.8	36	.7	36	.7	40	NSD
17. Meeting-Observing New People	1.0		-.5		.1		.8		
Meeting New People	1.4	32	-.1	42	.6	37	1.2	39	1,4,3>2 and 1>3
Observing Other People	.5	39	-.8	43	-.5	43	.5	41	1,4>3,2
18. Risk Taking	.5		.3		.2		.7		
Risk Taking	-.8	43	.0	41	.1	41	-.2	43	NSD
Risk Moderation	1.3	36	.4	39	.4	40	1.1	36	1,4>3,2
Risk Avoidance	1.0	37	.5	38	.1	41	1.1	36	4,1>3
19. Escaping Family	-.4		.3		.6		.1		
Escaping Family	-.4	42	.3	40	.6	37	.1	42	3>1

[a]Calculations for each domain or scale are based on at least the number of respondents indicated by N.

[b]Means are based on responses to a nine-point response format ranging from +4 (very strongly adds) to -4 (very strongly detracts). See Appendix D for a more detailed presentation of activity group REP statistics.

[c]Ranks are based on mean scores on the REP scales, with tied scores given the same rank.

[d]This column indicates that each activity group (1-4) to the left of the ">" has a mean that is significantly greater than the mean of each group to the right, based on the Student-Newman-Keuls Test ($p \leq .05$). Some REP scales showed no significant differences (NSD) between the activity groups.

Differences between the four "most important" activity groups are easier to discern from the far right column of Table 38. A Student-Newman-Keuls test in conjunction with Analysis of Variance ($p \leq .05$) was used to identify pairwise differences on the REP scale means of each activity group. Activity groups correspond to numbers assigned in the activity group column headings. The scales are grouped under general domain headings for ease of interpretation. Under the column labelled "Groups that Differ Significantly", any activity groups (by assigned number) that are to the left of the ">" have means that are significantly larger than the mean of any groups to the right of that sign. There is a one-to-one (group-to-group) statistical relationship between any activity groups separated by a sign (>). Therefore, hikers (group 3) have a significantly larger mean than campers near the automobile (group 1) on the Reinforcing Self Image scale. Another more complicated example is illustrated by the Exercise/Physical Fitness scale. Groups 3 and 2 <u>each</u> have significantly higher means than groups 4 and 1, and group 4 is significantly larger than group 1. A NSD notation in the column indicates that "no significant differences" were found between any of the activity group means for the appropriate REP scale.

Twenty-two of the 43 REP scales reported in this study have statistical differences between at least two of the most important activities. Yet, only six of the scales (Risk Avoidance, Meeting New People, Observing Other People, Physical Rest, Privacy, Escaping Family) have mean differences of at least 1.0 scale points. The ranks from Table 37 reveal that none of these scales have ranks higher than 17 (between 1 and 17), and four of them are ranked lower than 34. Although some statistical differences exist on the scales valued the highest, the major distinctions between the most important activity groups occur on the scales with relatively low means.

The six major differences existing between specific activity groups tend to support intuitive judgements concerning the expected desired experiences associated with particular activities. Those respondents, whose most important activity was camping near their automobile, had the highest means on Meeting New People, Observing Other People, and Physical Rest scales and lowest means on Privacy and Escaping Family. These developed site campers valued family experiences and social interaction with new people.

In contrast, the respondents in the hiking and camping away from auto categories favored the escape related experiences (Privacy, Escaping Family, etc.), and scored lowest on Observing Other People and Family Togetherness. These two activity groups were very similar in their responses. Only one scale (Meeting New People) out of 43 showed a significant difference between the means of these two activity groups.

Fishermen tended to be less extreme than respondents in the other activity groups. They did show high means on the Family Togetherness, Equipment, Skill Development, Nostalgia and Risk Avoidance REP scales. The Student-Newman-Keuls test was also used to decipher differences between respondents living in different areas of California. The three scales listed in Table 39 revealed differences between the recreationists from San Francisco and one or more of the other areas. San Franciscans scored lowest on all three scales. No differences were found between any of the remaining residence groups.

REP mean differences between identifiable subgroups of recreationists are all supported by statistical criteria for significance. Yet, many of those differences are difficult to interpret or too small to be meaningful from a management perspective. For example, scores shown from the Scenery scale (Table 38) reveal a statistically different mean between hikers and fishermen when their means varied by only 0.3. From a practical standpoint, managers

Table 39. Recreation experience preference scales showing significant differences between mean responses of groups based on residence of respondents sampled in the Sierra National Forest (Summer, 1979).

Recreation Experience Preferences Scale	Residence Groups[a] 1 Local (N=13)[b] Mean[c]	2 Fresno (N=213)[b] Mean[c]	3 San Francisco (N=34)[b] Mean[c]	4 Los Angeles (N=86)[b] Mean[c]	Groups That Differ Significantly[d]
Risk Moderation	1.2	.8	0	.9	1>3
Physical Rest	2.4	2.6	1.2	1.9	2,1>3
Temperature	2.0	1.9	.6	1.4	1,2,4>3

[a]Residence is based on zip code of respondent's permanent address.

[b]Calculations for each scale are based on at least the number of respondents indicated by N.

[c]Means are based on responses to a nine-point response format ranging from +4 (very strongly adds) to -4 (very strongly detracts) indicating perceived effect on satisfaction.

[d]This column indicates that each residence group (1-4) to the left of the ">" has a mean that is significantly greater than the mean of each group to the right, based on the Student-Newman-Keuls test ($p \leq .05$). These are the only significant differences between any of the residence group means for each scale.

could not manage an area to provide different experiences based on the magnitude of that difference. There is no general rule that specifies the proper size of a relevant difference. Intuitively, scales defining concepts most dependent on the resource, using the resource as an active ingredient or agent to deliver the experience opportunities, and having the highest absolute mean differences between subgroups of recreationists will tend to be the most relevant to resource planners and managers.

Albeit difficult to interpret all the differences on the REP scales, the comparisons displayed in Table 37, 38, and 39 clearly indicate that recreationists visiting the SNF realize a variety of recreation experiences, and distinct patterns of experience preferences are identifiable for different user groups. Close inspection of the individual group mean differences on the REP scales is necessary to discern the preference patterns most relevant to land management planning.

User Opinions about Management Actions and Conditions in the SNF

Four questions were incorporated in both summer questionnaires to elicit user preferences for specific management actions and user opinions about four general and several specific conditions in the SNF. Users were asked whether they favored or opposed 16 specific possible management actions, and instructed to record their responses on a Likert response format anchored from +4 (very strongly favor) to -4 (very strongly oppose). A similar Likert format ranging from +3 (strongly agree) to -3 (strongly disagree) was used to measure user opinions about general conditions of the SNF.[25] The third question related

[25]Refer to Appendix A, Figures A-4 and A-5, Question IV.

to management issues asked respondents to indicate maximum allowable limits for specific party (group) requirements in four SNF environments.[26] A second part of that question sought information concerning user perceptions of the social and ecological conditions of specific SNF environments. Respondents checked yes if they felt the specific area exhibited the listed condition or no if the listed condition was not evident in the area.

Overall Summary of Management Action Preferences

Summer users of the SNF favored most of the possible management items. Means, standard deviations, and rank orders were used to summarize user preferences and response patterns (Table 40). The management items are ordered in Table 40 from the most favored item (ranked 1) to the least favored item (ranked 16). While most of the actions have means indicating that respondents slightly or moderately favored the actions, high standard deviations on those same items reflect considerable disagreement among respondents and answers widely distributed around the means. Respondents either varied quite a bit in their answers or confined their responses to the extreme categories.

Users strongly favored the present "pack out what you pack in" policy in backcountry areas. Unlike most of the items, this action has a small standard deviation indicating strong concensus across respondents. No other management action is more than moderately favored. In fact, most of the actions stipulating construction, development of facilities, or use limitations for areas already used heavily were only slightly favored by users.

For items with large standard deviations the full pattern of responses (Table 41) is sometimes easier to interpret than the mean. For example, the

---

[26] Refer to Appendix A, Figures A-4 and A-5, Question X).

Table 40. Management item means and standard deviations for all respondents sampled in the Sierra National Forest (Summer, 1979).

Possible Management Actions	Mean[a]	S.D.[b]	Rank Order[c]
Continue to emphasize the "pack out what you pack in" policy in backcountry areas	3.8	.9	1
Establish more distance between campground campsites	2.0	1.9	2
Provide limited facilities (toilets and tables) at dispersed camping sites along roads	1.9	1.9	3
Establish designated rustic (low level of development) camping sites in areas accessible by roads	1.9	2.1	3
Maintain trailless areas in which all travel must be cross-country	1.7	2.3	5
Limit the number of people in the John Muir Wilderness at any one time for heavily used areas	1.5	2.3	6
Limit the number of people in the Kaiser Wilderness at any one time for heavily used areas	1.5	2.3	6
Construct more hiking trails in areas outside the John Muir and Kaiser Wilderness	1.3	2.4	8
Limit the number of people in heavily used areas on the forest, outside the John Muir and Kaiser Wilderness	1.3	2.4	8
Prohibit camping within 100 ft. of streams and lakes	1.3	3.0	8
Provide more campgrounds	.8	2.6	11
Provide more picnic areas	.7	2.1	12
Retain private recreation residences that are currently leased on National Forest land	.7	2.6	12
Provide showers and electricity in some campgrounds	.4	2.8	14
Construct more trails in the Kaiser Wilderness	0	2.3	15
Construct more trails in the John Muir Wilderness	-.1	2.4	16

[a]Means are based on responses to a nine-point response format ranging from +4 (very strongly favor) to -4 (very strongly oppose). Calculations for each management item are based on at least N=933 respondents.

[b]Standard deviation (S.D.) is a measure of variation in the responses around the mean score.

[c]Ranks are based on mean scores on the possible management actions, with tied scores given the same rank.

Table 41. Preferences for possible management actions of the respondents sampled in the Sierra National Forest (Summer, 1979).

Possible Management Actions	Very Strongly Favor (+4) Percent[a]	Strongly Favor (+3) Percent[a]	Moderately Favor (+2) Percent[a]	Slightly Favor (+1) Percent[a]	Neutral (0) Percent[a]	Slightly Oppose (-1) Percent[a]	Moderately Oppose (-2) Percent[a]	Strongly Oppose (-3) Percent[a]	Very Strongly Oppose (-4) Percent[a]	Number of Respondents
Continue to emphasize the "pack out what you pack in" policy in backcountry areas	93	4	1	0	1	0	0	0	1	956
Establish more distance between campground campsites	31	19	15	10	18	2	2	1	2	950
Provide limited facilities (toilets and tables) at dispersed camping sites along roads	23	21	23	14	8	3	3	1	3	949
Establish designated rustic (low level of development) camping sites in areas accessible by roads	26	18	25	11	9	3	2	1	5	952
Maintain trailless areas in which all travel must be cross country	32	14	12	7	24	3	3	1	5	948
Limit the number of people in the John Muir Wilderness at any one time for heavily used areas	27	15	16	10	18	4	3	2	6	954
Limit the number of people in the Kaiser Wilderness at any one time for heavily used areas	26	15	16	10	19	4	3	2	6	948
Construct more hiking trails in areas outside the John Muir and Kaiser Wilderness	23	12	19	9	21	3	3	3	7	953
Limit the number of people in heavily used areas on the forest, outside the John Muir and Kaiser Wilderness	24	13	18	10	15	5	4	2	8	952
Prohibit camping within 100 ft. of streams and lakes	42	9	8	3	9	5	5	6	13	947
Provide more campgrounds	20	10	19	12	12	6	7	4	11	950
Provide more picnic areas	10	10	17	17	27	6	5	3	7	933
Retain private recreation residences that are currently leased on National Forest land	21	10	12	8	27	4	5	3	12	941
Provide showers and electricity in some campgrounds	18	10	16	10	11	4	7	5	18	949
Construct more trails in the Kaiser Wilderness	8	7	12	10	32	6	6	5	14	942
Construct more trails in the John Muir Wilderness	7	8	12	10	30	6	7	5	14	946

[a]Percentages are based on the total number of respondents answering each possible management action.

mean for "prohibit camping within 100 feet of streams and lakes" is 1.3. Yet, 70 percent of the responses were in the extreme categories at either end of the scale, and only 3 percent were in the category closest to the mean (slightly favor). This information, along with the means and standard deviations (Table 40), gives a complete picture of the response patterns.

Preferences of Recreationists from Selected Subgroups of the Summer Users. Distinct patterns in the preferences of users categorized by "most important" activity are evident in mean differences across the possible management actions. Analysis of all 16 management items using a Student-Newman-Keuls test ($p \leq .05$) revealed mean differences between activity groups on nine items (Table 42). Campers away from the automobile and hikers show similar patterns of differences in this analysis. Both activity groups responded significantly higher than fishermen and campers near the automobile on five of the six management actions focusing on backcountry and wilderness use. Overall, the hikers and campers away from the automobile tended to favor limitation, regulation, and redistribution of use more than members of the other two activity groups. The largest difference in Table 42 is on the management action recommending more campgrounds. This action was moderately favored by campers near the automobile, slightly favored by fishermen, and neither favored nor opposed by hikers and campers away from the automobile.[27]

A Student-Newman-Keuls test was also used to determine if groups of respondents residing in different areas of California have different management action preferences (Table 43). Only three items showed one or more differences between

---

[27] Table E-1 in Appendix E contains a full breakdown on each management action of the mean, standard deviation, and number of respondents for each most important activity group.

Table 42. Management items showing significant differences between mean responses of groups based on most important activity of respondents sampled in the Sierra National Forest (Sumner, 1979).

Possible Management Actions	Activity Groups 1 Camping Near Auto (N=128)[a] Mean[b]	2 Camping Away From Auto (N=115)[a] Mean[b]	3 Hiking (N=172)[a] Mean[b]	4 Fishing (N=254)[a] Mean[b]	Groups That Differ Significantly[c]
Maintain trailless areas in which all travel must be cross country.	1.1	2.4	2.4	1.5	2,3>4,1
Limit the number of people in the John Muir Wilderness at any one time for heavily used areas.	1.3	2.2	2.2	1.2	2,3>1,4
Limit the number of people in the Kaiser Wilderness at any one time for heavily used areas.	1.3	2.1	2.1	1.2	2,3>1,4
Construct more hiking trails in areas outside the John Muir and Kaiser Wildernesses.	1.2	1.7	1.7	1.0	2,3>4
Limit the number of people in heavily used areas on the forest, outside the John Muir and Kaiser Wildernesses.	1.0	2.0	1.8	1.1	2,3>4,1
Prohibit camping within 100 ft. of streams and lakes.	1.1	1.9	2.0	0.8	3,2,1,4
Provide more campgrounds.	1.8	0.2	0.0	1.0	1>4>2,3
Retain private recreation residences that are currently leased on National Forest land.	1.1	0.3	0.4	0.8	1>3,2
Provide showers and electricity in some campgrounds.	1.0	-0.4	-0.3	0.5	1,4>3,2

[a]Calculations for each management item are based on at least the number of respondents indicated by N.

[b]Means are based on responses to a nine-point response format ranging from +4 (very strongly favor) to -4 (very strongly oppose). See Appendix E for a more detailed presentation of management item statistics for activity groups.

[c]This column indicates that each activity group (1-4) to the left of the ">" has a mean that is significantly greater than the mean of each group to the right, based on the Student-Newman-Keuls test ($p < .05$). These are the only sginificant differences between any of the activity group means for each management item.

Table 43. Management items showing significant differences between mean responses of groups based on residence of respondents sampled in the Sierra National Forest (Summer, 1979).

Possible Management Actions	Residence Groups[a] 1 Local (N=34)[b] Mean[c]	2 Fresno (N=390)[b] Mean[c]	3 San Francisco (N=62)[b] Mean[c]	4 Los Angeles (N=181)[b] Mean[c]	Groups That Differ Significantly[d]
Limit the number of people in the Kaiser Wilderness at any one time for heavily used areas.	1.1	.7	1.3	1.6	4>2
Prohibit camping within 100 ft. of streams and lakes.	-1.1	0	.3	.4	4,3,2>1
Provide showers and electricity in some campgrounds.	- .3	.2	-1.1	.5	4,2>3

[a]Residence is based on zip code of respondent's permanent address.

[b]Calculations for each management item are based on at least the number of respondents indicated by N.

[c]Means are based on responses to a nine-point response format ranging from +4 (very strongly favor) to -4 (very strongly oppose).

[d]This column indicates that each residence group (1-4) to the left of the ">" has a mean that is significantly greater than the mean of each group to the right, based on the Student-Newman-Keuls test ($p \leq .05$). These are the only significant differences between any of the residence group means for each management item.

the residence groups. Recreationists from Los Angeles scored on the higher side of all three differences. Yet, all the discrepancies occur between different residence groups, and the actions described by the items are unrelated. No overall trends appear to be evident from the three differences.

Table 30 showed a percentage distribution of the number of previous summer visits (between June 1978 and January 1980) of respondents recreating in the SNF. Using the categories of previous visits from Table 30 to define groups, the 16 management items were tested for group mean differences. Table 44 shows the four items having significant mean differences. Three of those differences focus on limiting the number of users in specific SNF areas. Respondents visiting the area once during the time period scored significantly higher on all the differences. This is contrasted with the lower means of regular visitors to the Sierra (groups 5 and 6, more than 15 visits). The regular or frequent users consistently scored lower on the three actions recommending use limits. Infrequent users of the SNF might have unrealistic expectations concerning the amount of use in the area. Preferring the use levels of past years, they might be inclined to favor use limitations more than frequent visitors who are accustomed to present levels.

Wilderness Users' Preferences for Wilderness Management Actions. Since many respondents answering management actions concerning use limitation in the wilderness areas had never visited those areas, one interesting analysis was to determine if those people preferred different management for the wilderness areas than people familiar with the wildernesses. Recalling that respondents were asked whether or not they had visited the John Muir and/or Kaiser Wilderness Areas in the past five years, a Student-Newman-Keuls was performed to isolate mean differences between all possible responses (yes, no,

Table 44. Management items showing significant differences between mean responses of groups based on number of previous visits for respondents sampled in the Sierra National Forest (Summer, 1979).

Possible Management Actions	Groups Based on Number of Previous Visits[a]						
	1 (1)[b] (N=120)[c] Mean[d]	2 (2-3)[b] (N=259)[c] Mean[d]	3 (4-6)[b] (N=181)[c] Mean[d]	4 (7-15)[b] (N=159)[c] Mean[d]	5 (16-30)[b] (N=99)[c] Mean[d]	6 (Over 30)[b] (N=106)[c] Mean[d]	Groups That Differ Significantly[e]
Limit the number of people in the John Muir Wilderness at any one time for heavily used areas	2.2	1.5	1.5	1.6	1.1	1.3	1>6,5
Limit the number of people in the Kaiser Wilderness at any one time for heavily used areas	2.0	1.5	1.5	1.6	1.0	1.1	1>6,5
Limit the number of people in heavily used areas on the forest, outside the John Muir and Kaiser Wilderness	1.8	1.3	1.5	1.4	.6	.9	1,3,4,2>5 1>6
Provide showers and electricity in campgrounds	.8	.6	.8	.1	0	-.5	1,3,2>6

[a]Number of summer visits to the Sierra National Forest during 1978 and 1979.

[b]Response range indicating number of previous visits by respondents in that group.

[c]Calculations for each management item are based on at least the number of respondents indicated by N.

[d]Means are based on responses to a nine-point response format ranging from +4 (very strongly favor) to -4 (very strongly oppose).

[e]This column indicates that each experience group (1-6) to the left of the ">" has a mean that is significantly greater than the mean of each experience group to the right, based on the Student-Newman-Keuls test ($p \leq .05$). These are the only significant differences between any of the experience group means for each management item.

don't know). Only management actions relevant to each individual area were selected for analysis.

Table 45 shows the mean differences across the response categories for respondents answering the question about visitation to the John Muir Wilderness. There were no differences between recreationists who knew they had or had not visited the area. Ironically, the three actions only revealed differences between the group that did not know whether they had visited the area and the other two groups.[28]

A similar test for mean differences was performed for the Kaiser Wilderness area on management actions pertinent to that area. No mean differences were found between respondents in the three response categories.[29]

User Opinions Concerning General Conditions of the SNF

A +3 (strongly agree) to -3 (strongly disagree) Likert response format was used to discern user opinions about four general conditions in the SNF (Table 46). The adequacy of commercial services item received the highest mean (1.9), indicating that SNF recreationists moderately agreed with the statement. Vandalism and traffic had little effect on respondents' perceived quality of recreation, as indicated by the neutral (near 0.0) mean on those items. Management actions (regulations, signs, etc.) do not appear too rigid based on the responses (slightly disagree) to the statement that there were too many management controls.

---

[28]The means, standard deviations, and number of respondents for each relevant wilderness management action across all three response categories is documented in Appendix E, Table E-2.

[29]Documentation of the means, standard deviations, and number of respondents for the Kaiser management actions are in Appendix E, Table E-3.

Table 45. Management items showing significant differences between mean responses of groups based on whether or not they have visited the John Muir Wilderness Area (Summer, 1979).

Possible Management Actions	1 Yes (N=533)[b] Mean[c]	2 No (N=279)[b] Mean[c]	3 Don't Know (N=109)[b] Mean[c]	Groups that Differ Significantly[d]
Maintain trailless areas in which all travel must be cross-country	1.9	1.5	1.0	1,2>3
Limit the number of people the John Muir Wilderness at any one time for heavily used areas	1.7	1.4	1.2	1>3
Construct more trails in the John Muir Wilderness	- .2	- .1	.5	3>2,1

[a]Groups are based on the respondent's answer to "Have you visited the John Muir Wilderness during the past five years?"

[b]Calculations for each management item are based on at least the number of respondents indicated by N.

[c]Means are based on responses to a nine-point response format ranging from +4 (very strongly favor) to -4 (very strongly oppose).

[d]This column indicates that each group (1-3) to the left of the ">" has a mean that is significantly greater than the mean of each group to the right, based on the Student-Newman-Keuls test ($p \leq .05$). These are the only significant differences between any of the group means for each management item.

Table 46. Means and standard deviations on statements regarding the sampled respondents' visits to the Sierra National Forest (Summer, 1979).

Statements	Mean[a]	S.D.[b]
Commercial services (grocery stores, restaurants, etc.) were adequate to meet your needs	1.9	1.4
There were too many controls (regulations, signs, etc.) on your behavior by existing management actions	- .9	1.8
Vandalism or willful damage to facilities or resources was evident and reduced the quality of your recreation experience	.2	1.8
Traffic on many of the roads was too heavy and reduced the quality of your recreation	- .1	1.7

[a]Means are based on responses to a seven-point response format ranging from +3 = strongly agree to -3 = strongly disagree. Calculations for each statement are based on at least N=946 respondents.

[b]Standard deviation (S.D.) is a measure of variation in the responses around the mean score.

When responses to the four general condition statements were disaggregated by the most important activity of the respondent, a Student-Newman-Keuls test failed to show any mean differences between groups.[30]

User Preferences for Party Limitations in Selected SNF Environments

People's perceptions of general conditions often do not provide enough information to identify user preferences. One could conclude from overall preferences that people are generally pleased or displeased with management. While users agreed that there were not too many controls restricting their present behavior, what are their preferences for specific management controls that might be implemented in the near future? A special question was designed for the SNF summer questionnaires asking respondents to specify maximum levels for certain party (group) requirements to control or regulate conditions in selected areas of the SNF. Users estimated the maximum levels for the total number of days a party is allowed to camp in any one area and the total number of people, pack and saddle animals, and vehicles allowed per party. Where relevant, estimates for the Huntington Lake Campground, the non-wilderness backcountry areas, the John Muir Wilderness, and the Kaiser Wilderness were obtained.[31]

There was considerable support by users for establishing limitations on specific aspects of party composition (Table 47). For the two wilderness areas, two-thirds of the respondents preferred 12 or fewer people per party and pack and saddle animals per party. These preferences are offset by approximately 23 percent of the users who want "no limit" set for those areas. Based on percentages in response categories, users specified nearly identical

---

[30]Mean scores, standard deviations, and number of respondents for the activity group analysis are reported in Table F-4 in Appendix F.

[31]Tables E-5 to E-8 in Appendix E list all the maximum levels indicated by the respondents.

Table 47. Respondents' indications of the maximum limits for specific party (group) requirements in areas of the Sierra National Forest (Summer, 1979).

Requirements	John Muir Wilderness	Kaiser Wilderness	Non-Wilderness Backcountry	Huntington Lake Campgrounds
Number of People Per Party (N=552)	Percent[a]	Percent[a]	Percent[a]	Percent[a]
1 - 6	38	37	27	32
7 - 12	29	30	32	30
13 - 20	8	9	10	7
> 20	2	1	3	4
No Limit	23	23	29	28
Number of Pack and Saddle Animals Per Party (N=524)	Percent[a]	Percent[a]	Percent[a]	Percent[a]
0	8	7	7	-
1 - 6	40	40	32	-
7 - 12	20	20	22	-
13 - 20	8	8	7	-
> 20	1	1	2	-
No Limit	23	24	30	-
Number of Vehicles Per Party (N=535)	Percent[a]	Percent[a]	Percent[a]	Percent[a]
0	-	-	14	3
1	-	-	16	19
2	-	-	24	32
3 - 5	-	-	16	16
> 5	-	-	5	6
No Limit	-	-	25	24
Total Days a Party is Allowed to Camp in Any One Area (N=622)	Percent[a]	Percent[a]	Percent[a]	Percent[a]
1 - 6	29	28	17	14
7	21	21	19	23
8 - 13	9	10	9	10
14	18	17	29	35
> 14	5	6	7	6
No Limit	18	19	19	12

[a]Calculations are based on at least the number of respondents indicated by N.

[b]Dash marks in this table indicate that the specific requirement is not allowed or relevant to that area.

limits in both wilderness areas for all the requirements. Therefore, if maximum levels are implemented, user preferences would support establishment of similar if not identical limitations in both wilderness areas. It is clear though, that not all users agree about the specific maximum number that should be set for each party requirement.

Some of the larger percentage differences between the wilderness areas and the other two areas occur on limitations concerning the total number of days a party is allowed to camp in one area. Thirty-five percent of the respondents felt that a party should be allowed to camp 14 days at Huntington Lake Campgrounds. This is double the percentage of respondents listed for either of the wilderness areas. Only 12 percent of the respondents indicated no camping limit should be set for the Huntington Lake area. This contrasts to almost 20 percent who felt the backcountry and wilderness areas should have no camping limitations.

Recommendations from John Muir Wilderness Users. Table 47 categorized the responses of all summer SNF users for each of the selected areas, without regard to whether those respondents had visited the listed area. More useful information is obtainable if the analysis is limited to users who visit or are familiar with the particular area. Table 48 depicts the recommended maximum levels in the John Muir Wilderness for only those recreationists who had visited that wilderness in the last five years. Located in the far left percentage column of that table, those data give a better indication of the preferences of users actually visiting the John Muir Wilderness. Also shown in Table 48 are the data from the same John Muir Wilderness users, but

Table 48. John Muir Wilderness users' indications of the maximum limits for specific party (group) requirements in the John Muir Wilderness. Respondents were sampled in the Sierra National Forest (Summer, 1979).[a]

Requirements	John Muir Wilderness Users[b]					
	All John Muir Wild. Users[b] (N=392)	Camping Near Auto (N=38)	Camping Away From Auto (N=75)	Hiking (N=88)	Fishing (N=93)	Other Activities (N=87)
	Percent[c]	Percent[c]	Percent[c]	Percent[c]	Percent[c]	Percent[c]
Number of People Per Party						
1 - 6	37	40	34	43	35	36
7 - 12	30	29	35	26	32	26
13 - 20	9	5	9	12	9	6
> 20	3	0	1	7	0	2
No Limit	22	26	20	12	25	29
Number of Pack and Saddle Animals Per Party						
0	9	5	12	16	4	6
1 - 6	42	42	49	48	43	28
7 - 12	19	24	17	17	20	19
13 - 20	7	3	4	2	9	11
> 20	1	3	0	1	1	2
No Limit	23	24	17	16	24	33
Total Days A Party Is Allowed to Camp in Any One Area						
1 - 6	33	24	35	46	24	30
7	18	17	16	16	21	18
8 - 13	10	0	14	11	13	6
14	15	26	6	10	17	20
> 14	7	2	1	5	9	7
No Limit	19	31	27	12	15	19

[a]The responses shown in this table are those of only the respondents that visited the John Muir Wilderness in the five years preceding this study.

[b]The left column labelled "All John Muir Wilderness Users" lists the percentage of responses in each category for all those people who have visited the John Muir Wilderness. The five columns labelled with activity headings further disaggregate those John Muir Wilderness users into groups based on the most important activity of the respondent. The most important activity given by the respondents refers to recreation in the Sierra National Forest (in general) and not specifically the John Muir Wilderness. Therefore, we do not know for sure whether or not these activities were participated in by respondents when they visited the John Muir Wilderness.

[c]Percentage values are calculated based on the number of respondents in each category.

categorized by "most important" activity.[32] The last column includes the remaining wilderness users not belonging to one of the four major activity groups.

No large differences are evident across the activity groups on user recommendations for number of people per party. The hikers show the largest percentage recommending limits of one to six people per party (43 percent), and the smallest percentage favoring no limit on the number of people per party (12 percent). This hiker versus other group preference pattern is consistent for the number of pack and saddle animals per party, and the total days a party is allowed to camp in any one area. Overall, users of the John Muir Wilderness (Table 48) have very similar preferences for party composition limitations in the John Muir Wilderness, compared to preferences of all Sierra users (Table 47).

Recommendations from Kaiser Wilderness Users. The same analysis was performed for Kaiser Wilderness users as for John Muir Wilderness users (Table 49). Again, the hiker group consistently preferred strict limits, and responded less in the no limit category. Almost 50 percent of the hikers preferred camping limits of one to six days at any one location. Responses from members of the other activity groups were remarkably uniform. The largest difference occurred for the recommended maximum number of days a

---

[32]The "most important" activity of the respondents was not necessarily related to wilderness recreation participation. The activity was used simply to categorize respondents for analysis. Answers to the question ascertaining respondent visitation to the John Muir Wilderness was separate. While campers near the automobile (Table 48) said they had visited the John Muir Wilderness during the previous five years, they did not necessarily engage in that activity in the wilderness area, and did not necessarily answer the limitation questions from the perspective of that activity.

Table 49. Kaiser Wilderness users' indications of the maximum limits for specific party (group) requirements in the Kaiser Wilderness. Respondents were sampled in the Sierra National Forest (Summer, 1979).[a]

Requirements	All Kaiser Wild. Users[b] (N=334) Percent[c]	Kaiser Wilderness Users[b] Camping Near Auto (N=31) Percent[c]	Camping Away From Auto (N=54) Percent[c]	Hiking (N=71) Percent[c]	Fishing (N=96) Percent[c]	Other Activities (N=75) Percent[c]
Number of People Per Party						
1 - 6	37	35	33	42	36	36
7 - 12	30	24	35	37	31	21
13 - 20	8	15	11	8	6	7
> 20	1	3	0	1	0	3
No Limit	24	24	21	11	27	33
Number of Pack and Saddle Animals Per Party						
0	8	7	7	18	4	4
1 - 6	40	36	50	39	39	27
7 - 12	20	23	15	15	25	20
13 - 20	8	13	6	4	6	12
> 20	1	3	0	0	1	2
No Limit	24	19	22	13	25	35
Total Days A Party Is Allowed to Camp in Any One Area						
1 - 6	30	31	29	48	23	23
7	19	15	16	14	25	20
8 - 13	10	0	11	16	11	8
14	16	23	3	5	21	24
> 14	5	3	5	5	4	7
No Limit	20	28	36	12	16	18

[a]The responses shown in this table are those of only the respondents that visited the Kaiser Wilderness in the five years preceding this study.

[b]The left column labelled "All Kaiser Wilderness Users" lists the percentage of responses in each category for all those people who have visited the Kaiser Wilderness. The five columns labelled with activity headings further disaggregate those Kaiser users based on the most important activity of the respondent. The most important activity given by the respondent refers to recreation in the Sierra National Forest (in general) and not specifically the Kaiser Wilderness. Therefore we do not know for sure whether or not these activities were participated in by respondents when they actually visited the Kaiser Wilderness.

[c]Percentage values are calculated based on the number of respondents in each category.

party could camp in any one area. Thirty-six percent of the campers away from the automobile wanted no limit on this condition, while fishermen (16 percent) and hikers (12 percent) had the lowest percentages of respondents for that category.

Social and Ecological Conditions of Selected SNF Environments

User perceptions of the social and ecological conditions at the four areas discussed above provide information about another aspect of the SNF recreation setting pertinent to management of the SNF. The John Muir and Kaiser Wilderness Areas, non-wilderness backcountry areas, and Huntington Lake Campgrounds were each rated by respondents to determine if users considered those areas socially overcrowded or ecologically overused. Approximately three-quarters of all summer respondents to each condition did not feel the John Muir Wilderness, Kaiser Wilderness, and non-wilderness backcountry areas were socially overcrowded or ecologically overused (Table 50). Only the Huntington Lake Campground areas were considered ecologically overused by more than a majority (59 percent) of the respondents.

When SNF recreationists were grouped by their "most important" activities, very few substantive differences between these groups appeared (Table 51). Campers away from the auto and hikers generally scored in the "yes" response category more often than campers near the automobile and fishermen. Forty-four percent of the campers away from the automobile felt the John Muir Wilderness was overcrowded. The Kaiser Wilderness was not rated overcrowded or overused by more than one-third of the respondents from any activity group. Substantial agreement is evident concerning the conditions of the Huntington Lake Campgrounds. More than 60 percent of the respondents from each activity rated that area overcrowded and overused. One exception is that the majority of the campers near the automobile considered the area not ecologically overused.

Table 50. Respondents' indication of the social and ecological conditions of specific areas in the Sierra National Forest (Summer, 1979).

Condition	John Muir Wilderness (N=626)[a]		Kaiser Wilderness (N=571)[a]		Non-Wilderness Backcountry Areas (N=689)[a]		Huntington Lake Campgrounds (N=778)[a]	
	Percent		Percent		Percent		Percent	
	Yes	No	Yes	No	Yes	No	Yes	No
Socially Overcrowded	33	67	24	76	26	74	69	31
Ecologically Overused	28	72	22	78	25	75	59	41

[a]Percentage values are based on at least the number of respondents indicated by N.

Table 51. Responses to the social and ecological conditions of selected areas by respondents sampled in the Sierra National Forest, grouped by their most important activity (Summer, 1979).

Conditions	Camping Near Auto			Camping Away From Auto			Hiking			Fishing		
	Percent[a]		Number of Respondents	Percent[a]		Number of Respondents	Percent[a]		Number of Respondents	Percent[a]		Number of Respondents
	Yes	No		Yes	No		Yes	No		Yes	No	
Condition of John Muir Wilderness												
Socially Overcrowded	33	67	(73)	44	56	(98)	35	65	(130)	33	67	(189)
Ecologically Overused	24	76	(71)	38	62	(94)	29	71	(124)	29	71	(172)
Condition of Kaiser Wilderness												
Socially Overcrowded	22	78	(68)	23	77	(74)	30	70	(114)	28	72	(169)
Ecologically Overused	18	82	(68)	24	76	(75)	31	69	(116)	21	79	(155)
Condition of Non-Wilderness Backcountry Areas												
Socially Overcrowded	21	79	(84)	32	68	(94)	26	74	(134)	30	70	(207)
Ecologically Overused	20	80	(82)	34	66	(93)	32	68	(133)	23	77	(193)
Condition of Huntington Lake Campgrounds												
Socially Overcrowded	60	40	(117)	73	27	(93)	76	24	(147)	72	28	(235)
Ecologically Overused	48	52	(111)	66	34	(88)	71	29	(144)	60	40	(214)

[a]Percentage values are calculated based on the number of respondents in each most important activity category answering the specific question.

Opinions of John Muir Wilderness Users. To further clarify user perceptions of overcrowding and overuse in specific areas of the SNF, users visiting the John Muir Wilderness in the past five years were separated to isolate their opinions about conditions in the John Muir Wilderness. Additionally, those wilderness users were categorized several ways: (1) opinions of all John Muir Wilderness users; (2) wilderness user responses categorized by "most important" activity groups; and (3) opinions of wilderness users based on responses to the total days a party is allowed to camp, maximum number of people per party, and maximum number of pack and saddle animals per party allowed in the John Muir Wilderness. This last series of disaggregations compares users preferring "no limit" (no maximum number) to recreationists recommending limits (set a maximum) on the use levels elicited using Question IX, Part 2 of the summer questionnaires. Subsequently, those two groups are compared based on their responses to social and ecological conditions in the John Muir Wilderness.

All wilderness users who perceived a need for maximum limitations on certain characteristics of parties (groups) rated the John Muir Wilderness more socially overcrowded and ecologically overused than wilderness users opposed to maximum limitations (Table 52). The largest percentage differences occur when wilderness users are categorized by preferences for party size limitations. Only 10 percent of the "no maximum number" group considered the area ecologically overused, whereas the "set a maximum" group shows 30 percent in the overused category. Those data help support the contention that users perceiving more environmental impacts are more amenable to use limitations.

Table 52. John Muir Wilderness users' indications of the social and ecological conditions of the John Muir Wilderness. Respodents were sampled in the Sierra National Forest (Summer, 1979).[a]

Characteristics of John Muir Wilderness Users[b]	Socially Overcrowded			Ecologically Overused		
	Percent[c]		Number of Respondents	Percent[c]		Number of Respondents
	Yes	No		Yes	No	
1. All John Muir Wilderness Users	35	65	(482)	28	72	(457)
2. Wilderness Users Participating in Selected Most Important Activities[d]						
Camping Near the Auto	40	60	(48)	27	73	(48)
Camping Away from Auto	41	59	(87)	34	63	(83)
Hiking	39	61	(106)	30	70	(101)
Fishing	37	63	(120)	30	70	(112)
All Other Activities	24	76	(121)	19	81	(113)
3. Wilderness Users' Opinions on the Maximum Number Of Total Days a Party is Allowed to Camp In One Area						
No Maximum Number	28	72	(74)	13	87	(71)
Set a Maximum	36	64	(408)	30	70	(386)
4. Wilderness Users' Opinions on the Maximum Number Of People Per Party						
No Maximum Number	19	81	(78)	10	90	(74)
Set a Maximum	38	62	(404)	31	69	(383)
5. Wilderness Users' Opinions on the Maximum Number Of Pack and Saddle Animals Per Party						
No Maximum Number	20	80	(82)	11	89	(82)
Set a Maximum	38	62	(400)	31	69	(378)

[a]The responses shown in this table are those of only the respondents that visited the John Muir Wilderness during the five years preceding this study.

[b]Each row heading shows a different division or breakdown (for related characteristics) of John Muir Wilderness users. The groupings within each characteristic were based on the wilderness users' responses to a specific question on the summer questionnaire.

[c]Percentage values are calculated based on the number of respondents in each most important activity category answering the specific question.

[d]The most important activity given by the respondent refers to recreation in the Sierra National Forest (in general) and not specifically the John Muir Wilderness. Therefore, we do not know for sure whether or not these activities were participated in by respondents when they actually visited the John Muir Wilderness.

Opinions of Kaiser Wilderness Users. Identical analyses to those described above were performed on Kaiser Wilderness users' responses to social and ecological conditions in the Kaiser Wilderness. The pattern of discrepancies between the "no maximum number" and "set a maximum" user groups are continued in the Kaiser results (Table 53). Even so, none of these percentage comparisons (excluding activity groups) show more than 30 percent of the respondents in the "yes" category indicating a perception of an overcrowded or overused environment.

Table 53. Kaiser Wilderness users' indications of the social and ecological conditions of the Kaiser Wilderness. Respondents were sampled in the Sierra National Forest (Summer, 1979).[a]

Characteristics of Kaiser Wilderness Users[b]	Socially Overcrowded			Ecologically Overused		
	Percent[c]		Number of Respondents	Percent[c]		Number of Respondents
	Yes	No		Yes	No	
1. All Kaiser Wilderness Users	27	73	(423)	24	76	(410)
2. Wilderness Users Participating in Selected Most Important Activities[d]						
Camping Near the Auto	29	71	(45)	20	80	(44)
Camping Away from Auto	20	80	(61)	24	76	(62)
Hiking	35	65	(86)	34	66	(88)
Fishing	32	68	(120)	24	76	(110)
All Other Activities	18	82	(111)	16	84	(106)
3. Wilderness Users' Opinions on the Maximum Number Of Total Days a Party is Allowed to Camp In One Area						
No Maximum Number	16	84	(70)	7	93	(70)
Set a Maximum	29	71	(353)	27	73	(340)
4. Wilderness Users' Opinions on the Maximum Number Of People Per Party						
No Maximum Number	12	88	(73)	10	90	(70)
Set a Maximum	30	70	(351)	26	74	(341)
5. Wilderness Users' Opinions on the Maximum Number Of Pack and Saddle Animals Per Party						
No Maximum Number	16	84	(76)	12	88	(75)
Set a Maximum	29	71	(347)	26	74	(335)

[a]The responses shown in this table are those of only the respondents that visited the Kaiser Wilderness during the five years preceding this study.

[b]Each row heading shows a different division or breakdown (for selected characteristics) of Kaiser Wilderness users. The groupings within each characteristic were based on the Wilderness users' responses to a specific question on the summer questionnaires.

[c]Percentage values are calculated based on the number of respondents in each most important activity category answering the specific question.

[d]The most important activity given by the respondent refers to recreation in the Sierra National Forest (in general) and not specifically the Kaiser Wilderness. Therefore, we do not know for sure whether or not these activities were participated in by the respondents when they actually visited the Kaiser Wilderness.

V. COMPARISON OF RECREATION EXPERIENCE PREFERENCES OF SNF USERS TO USERS OF PREVIOUSLY STUDIED AREAS

A major objective of this study was to determine if SNF recreationists have different recreation experience preferences than users recreating in similar environments and activities investigated in previous studies. This comparative analysis used three procedures to identify the REP similarities and/or differences. One procedure compared means on the REP scales and domains of SNF recreationists to those statistics from users in other areas of the country. While previous sections in this report focused on a single specific component or scale to relate the study results, scales and domains (groups of scales that cluster around a central theme) are reported in this section to facilitate comparison of data sets from different studies. Pearson Product-Moment Correlation Coefficients were incorporated into the second comparative procedure to measure the overall strength of the relationship between the REP means compared from different studies. The last procedure analyzed the SNF REP scale and domain structures using Cronbach alphas for comparison to the accepted or standard structure defined in past research.[33]

REP Mean Comparisons

SNF users participating in recreation activities are compared in this section to recreationists from previous study areas participating in the

---

[33] Since discussion of the data and statistical comparisons used in comparative procedures two and three are not of interest to most readers, those sections are placed in an appendix. Conclusions and results of those analyses are referred to in the text where relevant to management in the context of the study objectives.

same activities. Means for the REP scales (or domains) from the adds-detracts or importance questionnaire response formats are used in the comparisons. Since studies conducted over the last ten years have incorporated a variety of REP item, questionnaire, and reporting formats unique to specific locations, adoption of only one consistent format for comparative purposes would not include enough study areas to present a representative cross-section of data. As much as possible, the comparison analysis presents the information consistent with the format (adds-detracts questionnaire, REP scale values) adopted for presentation of the REP analysis in this report.

Each table in this section shows the means of the REP scales or domains from the SNF data and the means from all previous studies where those users engaged in the same activity as SNF users, and responded to the same questionnaire response format. One column in each table is reserved to record all the studies that have means at least 0.7 scale points different from the SNF mean on similar REP scales.[34] Additionally, the magnitude of the largest mean difference on each REP scale is listed when meaningful differences exist. The data in each table are ordered sequentially so that the highest means are reported first according to the ranks of the SNF scales.

Winter Comparisons

Very few studies of winter recreationists have comprehensive information on user recreation experience preferences across several activities. Only data from cross-country skiers and downhill skiers in other areas was available for the winter comparative analysis. These areas included: (1) the White River

[34]A discussion of the minimum magnitude (0.7) of a meaningful difference on the REP means is contained in the "Methods" section (under Comparative Analysis) of this report.

National Forest in Colorado; (2) the Arapahoe-Roosevelt National Forest in Colorado; (3) Lake Tahoe ski areas in California; and (4) selected areas in northeastern Pennsylvania. Each of these areas had data from only one activity suitable for comparison.

Differences Between Cross-Country Skiers. Studies of cross-country skier REP's have been conducted at the White River (WRNF) and Arapahoe-Roosevelt National Forests (ARNF) in Colorado. Table 54 shows the comparison between the SNF cross-country skiers and skiers from those two national forests.

SNF cross-country skiers have higher means than ARNF skiers on all scales with means differing by at least 0.7. The Reinforcing Self-Image and Spiritual scales both show large mean differences of at least 1.0 scale points between the studies. SNF cross-country skiers also tended to place higher value on three scales focusing on learning. These scales are General Learning, Exploration, and Learn About Nature.

Similarly, SNF cross-country skiers' means are slightly higher than means for cross-country skiers visiting the WRNF. Overall, five scales exhibit mean differences greater than 0.7. The Reinforcing Self-Image and Equipment scales show meaningful differences between the Sierra and both the ARNF and WRNF.

Differences Between Downhill Skiers. Downhill skiers from Northeastern Pennsylvania and selected ski resorts around Lake Tahoe in California have different patterns of comparisons to the downhill skiers from China Peak in the SNF. Since the Pennsylvania and Lake Tahoe studies both used the importance questionnaire format, the means in Table 55 reflect responses to a six-point response format ranging from not at all important (1) to extremely important (6).

Table 54. Comparison of REP scale means (adds-detracts format) for cross-country skiers sampled in the Sierra National Forest (Winter, 1979) to cross-country skiers sampled in previous studies.

Scale	Sierra (N=83)[a] Mean[b]	Previous Studies 1 Arapahoe/ Roosevelt (N=928)[a] Mean[b]	Previous Studies 2 White River (N=125)[a] Mean[b]	Studies That Differ From Sierra[c]	Largest Comparative Differences Between Means[d]
Scenery	3.5	3.5	3.5	--	--
Escape Crowds	3.4	NA	3.4	--	--
Exercise/Physical Fitness	3.3	3.2	3.3	--	--
General Nature Experience	3.3	2.9	3.3	--	--
Seek Open Space	3.3	2.9	NA	--	--
Escape Role Overloads	3.1	NA	3.1	--	--
Escape Daily Routine	3.1	2.6	2.7	--	--
Exploration	3.0	2.3	2.9	1	.7
Tranquility	3.0	3.2	2.8	--	--
Learn About Nature	2.9	2.1	2.9	1	.8
General Learning	2.9	2.1	2.6	1	.8
Skill Development	2.8	2.7	2.8	--	--
Being With Similar People	2.8	2.7	2.7	--	--
Seeking Stimulation	2.8	2.0	2.5	1	.8
Escape Physical Stressors	2.8	2.2	3.1	--	--
Competence Testing	2.7	NA	2.3	--	--
Reinforcing Self Image	2.6	1.6	3.5	1,2	1.0
Tension Release	2.6	2.4	2.4	--	--
Being With Friends	2.4	3.0	2.3	--	--
Slow Down Mentally	2.3	2.7	2.9	--	--
Independence	2.3	2.0	2.3	--	--
Spiritual	2.3	1.1	1.8	1	1.2
Social Security	2.2	NA	1.4	2	.8
Geography of Area	2.1	NA	2.4	--	--
Family Togetherness	2.0	1.5	1.8	--	--
Teaching-Sharing Skills	2.0	1.3	1.6	1	.7
Equipment	2.0	1.3	1.0	1,2	1.0
Autonomy	1.8	1.2	2.2	--	--
Privacy	1.8	2.3	2.0	--	--
Introspection	1.7	1.4	2.2	--	--
Nostalgia	1.7	1.0	1.6	1	.7
Risk Moderation	1.4	NA	.6	2	.8
Physical Rest	1.2	NA	1.3	--	--
Leading Others	.7	.5	- .4	2	1.1
Meeting New People	.3	.4	- .1	--	--
Risk Taking	.2	.6	.8	--	--
Risk Avoidance	.2	NA	.4	--	--
Social Recognition	.2	.8	.2	--	--
Observing Other People	- .4	- .3	- .9	--	--

[a]Calculations are based on the number of respondents indicated by N.

[b]Means are based on a nine-point response format ranging from +4 (very strongly adds) to -4 (very strongly detracts). NA indicates the data was not available.

[c]This column indicates that each study listed (1-2) has a mean score that is at least .7 different from the reported Sierra mean score.

[d]This column reports the largest mean difference (at least .7 or larger) between the Sierra mean score and the mean scores from previous studies.

Table 55. Comparison of REP scale means (importance format) for downhill skiers sampled in the Sierra National Forest (Winter, 1979) to downhill skiers sampled in previous studies.

Scale	Sierra (N=47)[a] Mean[b]	Previous Studies 1 Northeastern Pennsylvania (N=517)[a] Mean[b]	Previous Studies 2 Lake Tahoe (N=239)[a] Mean[b]	Studies That Differ From Sierra[c]	Largest Comparative Differences Between Means[d]
Escape Role Overloads	5.0	2.7	NA	1	2.3
Exercise/Physical Fitness	5.0	NA	4.6	--	--
Escape Daily Routine	4.9	NA	4.6	--	--
Being With Similar People	4.7	NA	4.4	--	--
Tension Release	4.7	NA	3.6	2	1.1
Competence Testing	4.6	NA	4.6	--	--
Scenery	4.6	NA	4.4	--	--
Being with Friends/Being with Similar People	4.5	3.1	NA	1	1.4
General Nature Experience	4.4	NA	3.9	--	--
Seek Open Space	4.3	NA	3.6	2	.7
Social Security	4.2	NA	2.8	2	1.4
Equipment	4.1	1.9	NA	1	2.2
Family Togetherness	4.0	NA	3.6	--	--
Escape Physical Stresses	3.9	NA	4.1	--	--
Tranquility	3.7	3.3	3.2	--	--
Reinforcing Self Image	3.7	4.1	NA	--	--
General Learning	3.7	NA	3.0	2	.7
Teaching Sharing Skills	3.6	2.2	2.7	1,2	1.4
Meeting New People	3.6	NA	3.2	--	--
Physical Rest	3.4	NA	3.2	--	--
Spiritual	3.4	NA	2.8	--	--
Observing Other People/Meeting New People	3.2	2.6	NA	--	--
Risk Taking	2.9	2.2	2.0	1,2	.9
Privacy	2.5	NA	3.0	--	--
Social Recognition	2.5	1.6	NA	1	.9

[a]Calculations are based on the number of respondents indicated by N.

[b]Means are based on a six-point response format ranging from 6 (extremely important) to 1 (not important).

[c]This column indicates that each study listed (1-2) has a mean score that is at least .7 different from the reported Sierra mean score.

[d]This column reports the largest mean difference (at least .7 or larger) between the Sierra mean score and the mean scores from previous studies.

SNF downhill skiers scored higher on eight of the nine common scales with the Pennsylvania study. Large differences exist for two-thirds of the scale means. The Equipment and Escape Role Overloads scales have mean differences greater than two scale points.

Comparison of the data sets from the two California studies reveals less dramatic differences than the Pennsylvania data. Six of 18 scales compared between the California skiers show differences of at least 0.7. The largest difference corresponds to the Social Security scale where the SNF skiers' mean is 1.4 higher than the Lake Tahoe skiers.

Overall Winter Comparison. The means in Table 54 and 55 reveal very few, if any, significant trends in the comparison of the REP responses of SNF winter recreationists to users studied in other areas. While the responses of SNF cross-country and downhill skiers tended to be slightly higher than the comparable responses of other users, the majority of these differences are too small to be meaningful. Most differences that are large do not consistently show up within or between activities from comparison to comparison. Only two REP scales show meaningful differences (greater than 0.7) between studies and activities across three comparisons. The SNF means for the Equipment scale are significantly higher than any of the values compared to them, and the Teaching-Sharing Skills scale shows meaningful differences on three of the four comparisons.

Summer Comparisons

Several summer studies in varying locations across the country had adequate REP data for comparison to Sierra summer recreationists. The analysis focused on users engaging in the same recreation activity. Hikers, campers near and away from the automobile, and fishermen from the SNF were

compared to users from: (1) the White River National Forest in Colorado; (2) the Shoshone National Forest in Wyoming; (3) Shenandoah National Park in Virginia; (4) the Appalachian Trail and selected state parks in Pennsylvania; and (6) the Huron River in Michigan. Unless noted in the subheading, all comparisons were made using the adds-detracts question format.

Differences Between Hikers. Although 18 REP scales show differences of 0.7 or larger between SNF hikers and hikers from any of four areas studied previously, very few trends are evident across all four areas (Table 56). Only three scales show differences across more than one other comparison. Differences on two of those, Meeting New People and Observing Other People, are quite similar since both scales are from the same domain, and describe the same general concept. The greatest number of differences is on the Equipment scale where the Sierra mean is higher than means from three other areas.

Twenty-seven of the 38 REP scales have Sierra means which are slightly higher than means for hikers visiting the White River National Forest (WRNF). Yet, only four of those scales differ by magnitudes large enough to be meaningful. Those scales, Teaching/Sharing Skills, Equipment, Leading Others, and Meeting New People all show higher means for SNF hikers. Since three of these focus on interaction with other people, one conclusion is that Sierra users are more receptive to recreating around other users simply because they are used to a more crowded environment, and expect to see people more often.

In contrast to the WRNF comparison, Shoshone hikers have higher means than SNF hikers on 60 percent of the common scales. Seven of these scales have differences as great as 0.7 with one difference of 1.4 scale points on

Table 55. Comparison of REP scale means (adds-detracts format) for hikers sampled in the Sierra National Forest (Summer, 1979) to hikers sampled in previous studies.

Scale	Sierra (N=95)[a] Mean[b]	Previous Studies 1 White River (N=131)[a] Mean[b]	2 Shoshone (N=60)[a] Mean[b]	3 Shenandoah (N=69)[a] Mean[b]	4 Shining Rock (N=62)[a] Mean[b]	Studies That Differ From Sierra[c]	Largest Comparative Difference Between Means[d]
Scenery	3.7	3.6	3.3	3.6	3.5	--	--
General Nature Experience	3.5	3.3	3.6	3.3	3.2	--	--
Escape Role Overloads	3.4	2.9	2.8	2.9	2.7	4	.7
Escape Crowds	3.3	3.0	NA	2.5	2.7	3	.8
Escape Daily Routine	3.1	2.6	3.0	3.1	3.0	--	--
Escape Physical Stressors	3.1	3.0	3.2	3.0	2.7	--	--
Exercise/Physical Fitness	3.0	3.1	3.3	3.0	2.7	--	--
Tranquility	3.0	2.8	3.3	2.9	2.8	--	--
Exploration	2.9	2.6	3.0	2.8	2.4	--	--
Learn About Nature	2.9	2.7	3.1	2.6	2.3	--	--
General Learning	2.7	2.4	NA	2.9	2.6	--	--
Tension Release	2.8	2.2	2.7	2.5	2.3	--	--
Slow Down Mentally	2.6	2.6	2.7	2.3	2.4	--	--
Independence	2.4	2.0	2.8	2.0	1.3	4	1.1
Seeking Stimulation	2.3	2.0	1.9	2.4	1.6	4	.7
Being with Similar People	2.3	2.0	2.2	2.1	1.3	4	1.0
Reinforcing Self Image	2.3	1.8	2.5	1.8	2.0	--	--
Geography of Area	2.2	2.2	2.7	2.2	2.1	--	--
Competence Testing	2.2	1.7	2.5	1.9	1.5	4	.7
Social Security	2.1	1.5	2.0	2.3	1.5	--	--
Family Togetherness	2.0	2.2	2.0	2.3	2.0	--	--
Skill Development	2.0	2.2	2.5	1.9	1.6	--	--
Spiritual	2.0	1.5	NA	1.9	1.9	--	--
Creativity	2.0	NA	2.3	1.7	1.1	4	.9
Nostalgia	1.9	1.5	2.4	1.8	1.5	--	--
Privacy	1.9	1.8	2.5	1.6	1.8	--	--
Introspection	1.8	1.9	2.7	2.0	1.7	2	.9
Being With Friends	1.8	1.8	1.8	2.5	1.9	3	.7
Teaching-Sharing Skills	1.8	1.1	1.7	1.5	1.2	1	.7
Control Power	1.8	NA	.9	NA	NA	2	.9
Equipment	1.7	.6	.8	1.2	.9	1,2,4	1.1
Physical Rest	1.6	1.2	2.5	1.9	1.5	2	.9
Autonomy	1.6	1.8	2.5	1.5	1.1	2	.9
Leading Others	.7	-.5	.5	.7	.4	1	1.2
Meeting New People	.6	-.3	.5	1.9	1.1	1,3	1.3
Social Recognition	.5	.1	.6	.7	.2	--	--
Risk Moderation	.4	.7	-.4	.7	.2	2	.8
Risk Taking	.1	.2	.5	.6	.1	--	--
Risk Avoidance	.1	.2	0	.4	.6	--	--
Observing Other People	-.5	-.9	.9	.3	-.3	2,3	1.4

[a]Calculations are based on the number of respondents indicated by N.

[b]Means are based on a nine-point response format ranging from +4 (very strongly adds) to -4 (very strongly detracts). NA indicates the data was not available.

[c]This column indicates that each study listed (1-4) has a mean score that is at least .7 different from the reported Sierra mean score.

[d]This column reports the largest mean difference (at least .7 or larger) between the Sierra mean score and the mean scores from previous studies.

the Observing Other People scale. This difference coupled with higher Shoshone means on Introspection, Autonomy, and Physical Rest indicate that Shoshone hikers are a little more laid back than SNF hikers, and prefer to reflect on their personal feelings more.

Shenandoah National Park (SNP) backcountry hiker means differ from means of SNF hikers on primarily four scales. These scales all relate to social interaction with other people and friends. SNP hikers scored higher on the Being With Friends, Meeting New People, and Observing Other People scales and lower on Escape Crowds. SNP hikers appear to be active within their group and with other groups. Additionally, they are not as concerned with escaping other people as the SNF hikers.

The seven differences between SNF hikers and Shining Rock Wilderness Area (SRWA) hikers are so varied that summary statements are difficult and practically meaningless. Interpretation relevant to Sierra hikers is difficult since it is easier to discuss how low the SRWA hiker means are than how high the means are for Sierra hikers. Nevertheless, SRWA hikers appear less motivated personally than Sierra hikers, as exhibited by the lower scores on scales measuring creativity, excitement, and testing one's abilities. One consistent trend with two of the other hiker comparisons is on the Equipment scale, where the SNF mean is higher than the SRWA mean.

Differences Between Campers Away From Automobile (remote campers). The overall pattern of differences between SNF remote campers and remote campers from three other areas is less consistent than differences between the hiker groups. The data from Table 57 indicate that Sierra remote campers have very similar recreation experience preferences to remote campers in other areas of the country. The scales showing differences large enough for consideration

Table 57. Comparison of REP scale means (adds-detracts format) for campers away from the automobile (remote campers) sampled in the Sierra National Forest (Summer, 1979) to remote campers sampled in previous studies.

Scale	Sierra (N=66)[a] Mean[b]	Previous Studies 1 White River (N=89)[a] Mean[b]	2 Shenandoah (N=100)[a] Mean[b]	3 Shining Rock (N=190)[a] Mean[b]	Studies That Differ From Sierra[c]	Largest Comparative Differences Between Means[d]
Scenery	3.6	3.6	3.6	3.4	--	--
General Nature Experience	3.6	3.4	3.4	3.3	--	--
Escape Role Overloads	3.6	3.3	3.4	3.0	--	--
Escape Crowds	3.4	2.9	3.0	2.8	--	--
Escape Daily Routine	3.2	3.2	3.0	3.0	--	--
Escape Physical Stressors	3.1	3.4	3.3	2.9	--	--
Exercise/Physical Fitness	3.1	3.0	3.0	2.8	--	--
Tranquility	3.0	3.2	3.2	3.0	--	--
Tension Release	2.9	2.5	2.6	2.7	--	--
Learn About Nature	2.8	2.8	2.6	2.7	--	--
Slow Down Mentally	2.8	3.1	2.5	2.7	--	--
General Learning	2.7	2.7	2.9	2.8	--	--
Being with Similar People	2.7	2.6	2.1	2.2	--	--
Exploration	2.6	2.9	2.8	2.8	--	--
Independence	2.3	2.6	2.7	2.6	--	--
Geography of Area	2.3	2.6	2.3	2.4	--	--
Seeking Stimulation	2.3	2.4	2.2	2.2	--	--
Reinforcing Self Image	2.2	2.6	2.7	2.4	--	--
Being With Friends	2.2	2.2	2.5	2.3	--	--
Spiritual	2.2	1.4	2.5	2.4	1	.8
Competence Testing	2.2	2.2	2.4	2.3	--	--
Social Security	2.2	2.2	2.1	1.9	--	--
Family Togetherness	2.2	1.9	1.8	1.8	--	--
Skill Development	2.1	2.4	2.3	2.3	--	--
Privacy	2.0	2.5	2.3	2.3	--	--
Physical Rest	2.0	.7	1.7	1.7	1	1.3
Equipment	2.0	1.9	1.7	1.7	--	--
Introspection	1.8	2.2	2.5	2.2	2	.7
Creativity	1.7	NA	2.1	1.7	--	--
Nostalgia	1.7	1.7	1.7	1.5	--	--
Autonomy	1.5	2.4	2.0	1.8	1	.9
Teaching-Sharing Skills	1.4	1.5	1.6	1.8	--	--
Leading Others	.8	- .3	.6	.8	1	1.1
Social Recognition	.7	.3	.6	.3	--	--
Risk Avoidance	.5	.5	.2	.3	--	--
Risk Moderation	.4	.7	.4	.1	--	--
Risk Taking	0	.6	1.2	.6	2	1.2
Meeting New People	- .1	1.0	2.1	1.3	1,2,3	2.0
Observing Other People	- .8	-1.3	- .2	- .3	--	--

[a]Calculations are based on the number of respondents indicated by N.

[b]Means are based on a nine-point response format ranging from +4 (very strongly adds) to -4 (very strongly detracts). NA indicates the data was not available.

[c]This column indicates that each study listed (1-3) has a mean score that is at least .7 different from the reported Sierra mean score.

[d]This column reports the largest mean difference (at least .7 or larger) between the Sierra mean score and the mean scores from previous studies.

are not highly valued by remote campers from any of the studies. Six of the REP scales with comparison differences of 0.7 or larger are among the 14 least valued scales. Only the scale ranked second to last, Meeting New People, has differences from more than one study. All three studies selected for comparison of remote campers have higher means than the SNF mean for that scale. In fact, the SNP mean is 2.0 scale points higher than the SNF mean on that scale, making it one of the largest individual differences between all activity group comparisons using the adds-detracts format. While meeting other people in the area neither adds nor detracts from SNF hiker satisfaction, it moderately adds to the satisfaction of hikers in Shenandoah National Park.

Differences Between Campers Near the Automobile (car campers). Only two studies had sufficient data from car campers to compare with the SNF users (Table 58). Even so, large differences are evident from 12 REP scales, and seven of those show differences of at least one scale point (1.0). Again, most of the differences occur on the least valued REP scales. The Equipment, Privacy, and Observing Other People scales all exhibit differences on SNF comparisons with both WRNF and Shoshone car campers.

Mean score differences on the Privacy and Observing Other People scales indicate that Sierra car campers are more tolerant of other recreationists than car campers from the other areas. This conclusion is supported by other differences between the SNF and Shoshone car campers, which indicate that Shoshone car campers placed more importance on getting away from noise, etc., so they could be on their own to reflect on their personal values. Similar support is evident in the WRNF comparison where WRNF car campers preferred Leading Other People and Meeting New People in the area less than SNF car campers.

Table 58. Comparison of REP scale means (adds-detracts format) for campers near the automobile (car campers) sampled in the Sierra National Forest (Summer, 1979) to car campers sampled in previous studies.

Scale	Sierra (N=74)[a] Mean[b]	Previous Studies 1 White River (N=217)[a] Mean[b]	Previous Studies 2 Shosone (N=23)[a] Mean[b]	Studies That Differ From Sierra[c]	Largest Comparative Differences Between Means[d]
Scenery	3.4	3.5	3.5	--	--
General Nature Experience	3.3	3.3	3.4	--	--
Escape Daily Routine	3.2	2.7	3.5	--	--
Escape Role Overloads	3.2	3.3	3.0	--	--
Escape Crowds	2.8	3.0	NA	--	--
Family Togetherness	2.8	2.6	3.2	--	--
Escape Physical Stressors	2.7	NA	3.4	2	.7
Tranquility	2.7	2.8	3.1	--	--
Tension Release	2.7	2.5	2.8	--	--
Slow Down Mentally	2.6	3.0	2.8	--	--
Physical Rest	2.6	1.9	2.7	1	.7
Being With Similar People	2.5	2.2	2.1	--	--
Learn About Nature	2.4	2.4	2.9	--	--
Exploration	2.4	2.9	2.7	--	--
Social Security	2.4	2.0	2.3	--	--
Equipment	2.2	.9	1.5	1,2	1.3
Exercise/Physical Fitness	2.2	2.4	2.7	--	--
Spiritual	2.1	1.6	NA	--	--
Being With Friends	2.1	1.8	2.3	--	--
Nostalgia	1.9	1.7	2.3	--	--
Geography of Area	1.8	2.0	2.2	--	--
Reinforcing Self Image	1.7	1.7	2.0	--	--
Independence	1.6	2.1	2.3	2	.7
Teaching-Sharing Skills	1.6	1.2	1.4	--	--
Skill Development	1.5	1.8	2.1	--	--
Creativity	1.5	NA	2.0	--	--
Seeking Stimulation	1.5	1.8	1.3	--	--
Control Power	1.5	NA	.9	--	--
Introspection	1.4	1.7	2.1	2	.7
Autonomy	1.4	2.0	2.0	--	--
Competence Testing	1.4	1.4	1.9	--	--
Meeting New People	1.4	.2	1.2	1	1.2
Risk Moderation	1.3	.8	.3	2	1.0
Privacy	1.0	1.7	2.5	1,2	1.5
Risk Avoidance	1.0	.7	- .3	2	1.3
Social Recognition	.5	- .1	.3	--	--
Observing Other People	.5	- .6	- .9	1,2	1.4
Leading Others	.4	- .4	.5	1	.8
Risk Taking	- .8	.2	- .7	1	1.0

[a] Calculations are based on the number of respondents indicated by N.

[b] Means are based on a nine-point response format ranging from +4 (very strongly adds) to -4 (very strongly detracts). NA indicates the data was not available.

[c] This column indicates that each study listed (1-2) has a mean score that is at least .7 different from the reported Sierra mean score.

[d] This column reports the largest mean difference (at least .7 or larger) between the Sierra mean score and the mean scores from previous studies.

Differences Between Fishermen. REP preferences of fishermen (adds-detracts format) were only available from the White River and Shoshone studies (Table 59). Results of these comparisons lead to conclusions that are similar to those reached from the car camper comparisons. While the general conclusions are similar for car campers and fishermen, several different REP dimensions (scales) are used in each study to support the preference patterns. The Escape Role Overloads, Being With Similar People, Social Interaction, and Social Recognition scales all show large differences (>0.7) on one of the comparisons of fishermen groups and no difference between car camper groups. Similarly, there are seven REP scales that show differences for the car campers that are not evident for fishermen. Yet, all these differences support the same conclusion that SNF car campers and fishermen preferred more overall interaction with people (socially and personally) than car campers and fishermen from the Shoshone and WRNF areas.

Differences Between Hikers (importance format). Since the Northeastern Pennsylvania study of hikers used the importance format, the mean values in Tables 60, 61, and 62 reflect responses to a six-point scale ranging from not at all important (1) to extremely important (6). Additionally, several Sierra scales have been regrouped to conform to the format used in the Pennsylvania study.

Twenty-two of the 25 common scales comparing Pennsylvania and SNF hikers reflect higher mean scores for the Sierra users (Table 60). Fifteen scales have mean scores differing by 0.7 or larger. The Escape Role Overloads, Social Security, Family Togetherness, and Seeking Stimulation scales exhibit the largest mean differences. The distribution of large differences in Table 60 is different from the distribution in Table 56 (adds-detracts hiker comparisons). Whereas the Pennsylvania and Sierra hikers differ primarily on

Table 59. Comparison of REP scale means (adds-detracts format) for fishermen sampled in the Sierra National Forest (Summer, 1979) to fishermen sampled in previous studies.

Scale	Sierra (N=203)[a] Mean[b]	Previous Studies 1 White River (N=145)[a] Mean[b]	Previous Studies 2 Shoshone (N=58)[a] Mean[b]	Studies That Differ From Sierra[c]	Largest Comparative Differences Between Means[d]
Scenery	3.4	3.5	3.2	--	--
Escape Role Overloads	3.4	3.0	2.5	2	.9
General Nature Experience	3.3	3.2	3.2	--	--
Escape Crowds	3.2	2.9	NA	--	--
Escape Daily Routine	3.2	2.8	3.1	--	--
Escape Physical Stressors	3.1	2.9	2.9	--	--
Tranquility	2.9	2.5	3.0	--	--
Learn About Nature	2.8	2.5	2.7	--	--
Family Togetherness	2.8	2.5	2.4	--	--
Slow Down Mentally	2.8	2.7	2.2	--	--
Being With Similar People	2.7	2.3	1.8	2	.9
Exercise/Physical Fitness	2.6	2.5	2.7	--	--
Nostalgia	2.6	2.0	2.6	--	--
Tension Release	2.6	2.2	2.4	--	--
Exploration	2.5	2.4	2.5	--	--
General Learning	2.5	2.1	NA	--	--
Physical Rest	2.4	1.9	2.8	--	--
Equipment	2.4	1.0	1.6	1,2	1.4
Social Security	2.3	1.4	1.7	1	.9
Skill Development	2.3	1.9	2.6	--	--
Being With Friends	2.3	1.9	1.7	--	--
Competence Testing	2.2	1.4	2.3	1	.8
Independence	2.1	2.0	2.6	--	--
Seeking Stimulation	2.0	1.8	1.9	--	--
Spiritual	1.9	1.3	NA	--	--
Teaching-Sharing Skills	1.9	1.4	1.9	--	--
Control Power	1.9	NA	1.4	--	--
Geography of Area	1.8	1.8	2.6	2	.8
Reinforcing Self Image	1.8	1.9	2.2	--	--
Creativity	1.6	NA	1.4	--	--
Autonomy	1.5	1.9	2.0	--	--
Introspection	1.5	1.6	1.9	--	--
Privacy	1.4	1.5	2.1	2	.7
Meeting New People	1.2	- .3	.6	1	1.5
Risk Moderation	1.1	.5	.2	2	.9
Risk Avoidance	1.1	.9	-1.1	2	2.2
Social Recognition	.9	0	.7	1	.9
Leading Others	.7	.2	.5	--	--
Observing Other People	.5	.1	.5	--	--
Risk Taking	- .2	- .3	.4	--	--

[a] Calculations are based on the number of respondents indicated by N.

[b] Means are based on a nine-point response format ranging from +4 (very strongly adds) to -4 (very strongly detracts). NA indicates the data was not available.

[c] This column indicates that each study listed (1-2) has a mean score that is at least .7 different from the reported Sierra mean score.

[d] This column reports the largest mean difference (at least .7 or larger) between the Sierra mean score and the mean scores from previous studies.

Table 60. Comparison of REP scale means (importance format) for hikers sampled in the Sierra National Forest (Summer, 1979) to hikers sampled in Northeastern Pennsylvania.

Scale	Sierra (N=79)[a] Mean[b]	Previous Studies Northeastern Pennsylvania (N=35)[a] Mean[b]	Studies That Differ From Sierra[c]	Largest Comparative Differences Between Means[d]
General Nature Experience	5.3	3.9	1	1.4
Escape Role Overloads	5.1	2.7	1	2.4
Escape Daily Routine	4.7	4.0	1	.7
Escape Physical Stressors	4.7	3.7	1	1.0
Exercise/Physical Fitness	4.6	3.3	1	1.3
Tranquility/Seek Open Space/Privacy	4.4	3.4	1	1.0
General Learning/Exploration	4.3	3.3	1	1.0
Tension Release/Slow Down Mentally	4.3	2.9	1	1.4
Spiritual	4.0	2.7	1	1.3
Social Security	3.9	2.4	1	1.6
Family Togetherness	3.9	1.8	1	2.1
Being With Friends/Similar People	3.7	3.4	--	--
Reinforcing Self Image/Competence Testing	3.6	3.0	--	--
Seeking Stimulation	3.6	1.8	1	1.8
Independence/Control Power	3.4	2.9	--	--
Introspection	3.3	3.0	--	--
Physical Rest	3.2	2.7	--	--
Teaching-Sharing Skills	3.1	2.7	--	--
Creativity	3.1	2.3	1	.8
Nostalgia	3.0	2.2	1	.8
Temperature	2.7	1.9	1	.8
Risk Taking	2.0	2.0	--	--
Meeting New People/Observe Others	2.1	2.2	--	--
Escaping Family	2.0	2.0	--	--
Social Recognition	1.9	1.7	--	--

[a]Calculations are based on the number of respondents indicated by N.

[b]Means are based on a six-point response format ranging from 6 (extremely important) to 1 (not important).

[c]This column indicates that each study listed (1-2) has a mean score that is at least .7 different from the reported Sierra mean score.

[d]This column reports the largest mean difference (at least .7 or larger) between the Sierra mean score and the mean scores from previous studies.

REP scales they both valued highly, comparisons from the other hiker groups reveal most of the differences on scales not highly valued. This might indicate that there are more substantial differences between Sierra and Pennsylvania hikers than differences for other areas shown in Table 56.

Differences Between Campers Near the Automobile (importance format). Car campers from the SNF are compared to car campers from Northeastern Pennsylvania and the Michigan Huron River in Table 61. Seventeen REP scales show mean differences involving one or both of those areas with the Sierra car campers. The most pronounced difference occurs on the Escape Role Overloads scale where SNF car campers have higher means than car campers from Pennsylvania and Michigan by 1.6 and 1.8 scale points respectively. Large differences are apparent on all the escape-related dimensions. If the data in Table 61 were analyzed to determine differences between the Pennsylvania and Michigan car campers, only two REP scales would show differences. This indicates that there is significant homogeneity between the two eastern studies, and that the SNF differences in Table 61 are consistent across both areas being compared.

Differences Between Fishermen (importance format). Fishermen exhibit more large mean discrepancies between areas than any of the other activities using the importance format. Seventeen out of 20 scales with differences 0.7 or larger are different for both of the areas compared to the SNF (Table 62). All 17 of those differences have Sierra means larger than the means reported from the eastern data sets. The Meeting New People/ Observing Other People scale is the only dimension with a mean value from one of the eastern studies larger than the Sierra mean. Huron River fishermen have a mean 0.7 scale points higher than the comparable scale for the Sierra fishermen. Several other dimensions measuring different preferences for

Table 61. Comparison of REP scale means (importance format) for campers near the automobile (car campers) sampled in the Sierra National Forest (Summer, 1979) to car campers sampled in previous studies.

Scale	Sierra (N=74)[a] Mean[b]	Previous Studies 1 Northeastern Pennsylvania (N=535)[a] Mean[b]	Previous Studies 2 Michigan Huron River (N=201)[a] Mean[b]	Studies That Differ From Sierra[c]	Largest Comparative Differences Between Means[d]
Escape Role Overloads	5.3	3.7	3.5	1,2	1.8
Escape Daily Routine	5.0	3.9	4.7	1	1.1
General Nature Experience	4.9	4.4	4.3	--	--
Family Togetherness	4.8	4.0	3.5	1,2	1.3
Tranquility/Seek Open Space/Privacy	4.6	4.4	3.8	2	.8
Escape Physical Stressors	4.5	3.3	4.6	1	1.2
Physical Rest	4.5	NA	4.4	--	--
Social Security	4.4	3.2	3.3	1-2	1.2
Tension Release/Slow Down Mentally	4.2	3.4	3.8	1	.8
Being With Friends/Similar People	4.0	3.8	3.7	--	--
Exercise/Physical Fitness	4.0	3.2	3.3	1	.8
General Learning/Exploration	4.0	3.2	3.2	1,2	.8
Equipment	3.8	NA	2.2	2	1.6
Spiritual	3.7	2.2	NA	1	1.5
Nostalgia	3.4	3.2	3.1	--	--
Independence/Control Power	3.3	2.7	2.2	2	1.1
Teaching-Sharing Skills	3.2	2.4	2.2	1,2	1.0
Seeking Stimulation	3.2	NA	2.0	2	1.2
Creativity	3.1	2.5	2.1	2	1.0
Reinforcing Self Image/Competence Testing	3.1	2.4	2.2	1,2	.9
Introspection	2.9	2.5	2.4	--	--
Meeting New People/Observing Other People	2.3	2.7	3.0	2	.7
Social Recognition	1.9	NA	1.5	--	--
Risk Taking	1.6	1.7	1.4	--	--

[a]Calculations are based on the number of respondents indicated by N.

[b]Means are based on a six-point response format ranging from 6 (extremely important) to 1 (not important).

[c]This column indicates that each study listed (1-2) has a mean score that is at least .7 different from the reported Sierra mean score.

[d]This column reports the largest mean difference (at least .7 or larger) between the Sierra mean score and the

Table 62. Comparison of REP scale means (importance format) for fishermen sampled in the Sierra National Forest (Summer, 1979) to fishermen sampled in previous studies.

Scale	Sierra (N=132)[a] Mean[b]	Previous Studies 1 Northeastern Pennsylvania (N=226)[a] Mean[b]	Previous Studies 2 Michigan Huron River (N=335)[a] Mean[b]	Studies That Differ From Sierra[c]	Largest Comparative Differences Between Means[d]
Escape Role Overloads	5.3	3.3	3.1	1,2	2.2
Escape Daily Routine	5.1	4.2	4.2	1,2	.9
General Nature Experience	5.1	3.9	4.1	1,2	1.2
Escape Physical Stressors	4.9	4.1	4.2	1,2	.8
Tension Release/Slow Down Mentally	4.8	3.5	3.5	1,2	1.3
Family Togetherness	4.7	2.9	2.9	1,2	1.8
General Learning/Exploration	4.5	3.0	3.2	1,2	1.5
Physical Rest	4.4	4.1	4.3	--	--
Being With Friends/Similar People	4.4	3.2	3.4	1,2	1.2
Exercise/Physical Fitness	4.4	3.3	3.1	1,2	1.3
Social Security	4.4	2.6	2.9	1,2	1.8
Tranquility/Seek Open Space/Privacy	4.3	3.8	3.8	--	--
Nostalgia	4.0	2.9	3.2	1,2	1.1
Independence/Control Power	4.0	2.7	2.4	1,2	1.6
Teaching-Sharing Skills	3.9	2.5	2.6	1,2	1.4
Seeking Stimulation	3.7	2.2	2.2	1,2	1.5
Reinforcing Self Image/Competence Testing	3.6	2.3	2.7	1,2	1.3
Spiritual	3.6	2.0	2.5	1,2	1.6
Creativity	3.5	2.2	2.0	1,2	1.5
Temperature	3.4	2.7	2.9	1	.7
Introspection	3.2	2.4	2.6	1	.8
Meeting New People/Observing Other People	2.7	2.4	3.4	2	.7
Social Recognition	2.3	1.8	1.8	--	--
Risk Taking	2.1	1.6	1.5	--	--

[a]Calculations are based on the number of respondents indicated by N.

[b]Means are based on a six-point response format ranging from 6 (extremely important) to 1 (not important).

[c]This column indicates that each study listed (1-2) has a mean score that is at least .7 different from the reported Sierra mean score.

[d]This column reports the largest mean difference (at least .7 or larger) between the Sierra mean score and the mean scores from previous studies.

social interaction (Social Recognition and Tranquility/Seek Open Space/Privacy) show no differences between the SNF data and data from the eastern areas. High population centers near eastern recreation areas appear to affect people's preferences for social settings. These preferences are similar to the preferences reported by some subgroups of Sierra recreationists.

Overall Summer Comparison. The mean comparisons of summer SNF recreationists to users in six areas studied in previous research revealed a wide variety of differences. Specific similarities across activities and between areas are difficult to assess, since few comparisons showed consistent trends, and different studies incorporated different scales and response formats. Yet, several general conclusions are evident from the comparisons.

A count of all the REP scale differences, regardless of the size of the differences, from each comparison by area indicates that Sierra users tended to have the highest means; although there was some variation between activities for individual areas. Specifically, Shoshone and Shenandoah users each had about 50 percent of their means higher than (or lower than) the listed Sierra means across all their comparisons.

Since most of the comparisons had differences too small to be relevant or practical, investigation of only the scales that showed large mean differences ($\geq .7$) across all activity groups for each area gave a better indication of a meaningful trend. On those scales SNF recreationists showed higher means than users surveyed in the White River National Forest, Shoshone National Forest, the Shining Rock Wilderness, Northeastern Pennsylvania, and the Huron River in Michigan. REP's exhibiting large mean differences between Sierra and Shenandoah recreationists revealed lower Sierra means on six of

seven scales across two activity comparisons. Although Sierra scores tended to be higher for most of the comparisons, the content of the individual scales showing the differences in each area is important for proper interpretation of a higher or lower mean.

The areas having recreation opportunities most similar to the Sierra setting were the WRNF, Shoshone, SNP, and SRWA. Several scales consistently showed large differences across all the activity comparisons between Sierra users and recreationists in each of these areas. The most relevant and consistent differences are discussed by area below.

A review of all the differences across four activity groups compared between summer users from the SNF and WRNF indicated that the Sierra users valued the REP's more than the WRNF recreationists. One trend in those differences is evident. Sierra users in the four activity groups appeared more socially active in their recreation participation, and valued interaction with people more than WRNF users. The Leading Others and Meeting New People scales were scored higher by Sierra users in three of the four comparisons. Although each was associated with only one significant activity comparison, mean differences on the Teaching/Sharing Skills, Social Recognition, Privacy, Observing Other People, Social Security, and Autonomy scales all helped substantiate a different social atmosphere in the SNF. While the scales mentioned above helped support that premise, it is interesting to note that none of these scales was among the most highly valued in any activity in either area. These differences were apparent, but were not highly valued as experiences in either the SNF or the WRNF.

SNF recreationists scored significantly higher on the Equipment and Risk Moderation scales across all three activity group comparisons with Shoshone users. Higher scores by Shoshone recreationists for selected comparisons

on the Independence, Introspection, Privacy, Spiritual, and Autonomy scales reflected more appreciation for personal time and individual freedom by Shoshone users. The Sierra recreationists also appeared less secure in their recreation environment, as indicated by their higher means on Risk Avoidance, Risk Moderation, and Control Power recreation experiences.

Very few large differences were apparent from the REP comparisons of SNF recreationists to SNP visitors. For hikers and remote campers, a total of seven REP scales showed meaningful differences between the areas. Four of these directly related to scales measuring concepts focusing on interaction with other users. In contrast to the results of the comparisons of SNF users to Shoshone and WRNF recreationists, the SNP users expected and desired more affiliation with other recreationists than SNF users.

Activity comparisons of SRWA and Sierra recreationists also revealed very few differences. The eight differences that did show up were not consistent between activities, occurred on scattered dimensions within activities, and exhibited little managerial relevance.

In summary, the activity comparisons using the adds-detracts format revealed meaningful differences across all areas on only a few REP dimensions. The Meeting New People scale exhibited the largest number of differences. Yet, summary statements from those differences are difficult to make, since the Sierra scores were higher for some comparisons and lower for others. Overall differences registered by responses to the Equipment scale are easier to interpret, because the Sierra means were always higher. SNF recreationists placed a stronger emphasis on using their equipment than people visiting any of the other areas. Most of the other scales consistently indicating large mean differences focused primarily on recreationists' preferences related to social interaction with other people. Except for comparisons with the

Shenandoah users, the SNF recreationists generally preferred a more active social environment to engage in their recreation pursuits than visitors to the areas studied previously.

The recreationists responding to the importance format from Northeastern Pennsylvania and the Huron River in Michigan compared differently to SNF users than visitors to the other four areas. Most of the scale comparisons with the Pennsylvania and Michigan data showed large mean differences, whereas the other areas had relatively few significant differences from each comparison. Sierra users also had higher mean scores on almost all of the scales revealing large differences.

There are several possible explanations why so many differences occurred. First, the Sierra recreation environment is more primitive than the test areas in Pennsylvania and Michigan. Those areas are closer to the roaded natural or semi-rural environments. This difference in recreation environments and subsequent difference in scale scores support the premise that recreationists participating in similar activities in different ROS environments will have different preferences for recreation experiences. A second possible explanation for the large number of differences is that the two eastern studies incorporated a different response and instructional set than the one given to the Sierra users. Sometimes subtle differences in question wording can trigger different responses. This could account for response similarities between the two eastern studies, and the differences they both exhibited with the Sierra data. Lastly, the items included on the questionnaires have been changed and refined since completion of the Pennsylvania and Michigan studies. Many scores were determined from different items or items with different wording than the Sierra study. It is beyond the scope of this study to determine all the reasons why differences existed, which were the real differences, and which

were the design differences. It is important that a large number of differences occurred between areas using the importance format, and the differences might be related to other factors besides differences between Sierra users and visitors to those two areas. More research is needed using that format to correctly ascertain meaningful differences.

Correlation Coefficient Comparisons

A correlation coefficient provides a measure of the strength and type of relationship between two variables. In this study a correlation value was used to indicate the similarity in the REP response patterns of visitors to the SNF and the other study areas compared in Tables 54-62. A high correlation coefficient means that the recreationists visiting the two areas selected for comparison responded to the REP scales in a similar way.[35]

The correlation analysis of all the winter and summer data sets strongly confirms that recreationists in different parts of the country respond to the REP scales in a similar manner to the response patterns exhibited by Sierra users. The only correlation coefficient indicating a weak relationship was between downhill skiers from the SNF and northeastern Pennsylvania. Additionally, respondents who were administered the adds-detracts (questionnaire) format had higher overall correlations than respondents who answered questionnaires containing the importance format.

Structural Consistency of REP Scales and Domains

Reliability analysis is another method that can be used to test whether or not recreationists from different areas answer the REP's in a similar way.

---

[35]A discussion of the correlation coefficients along with the values is contained in Appendix F.

This method focuses on the strength or stability of the REP scales and domains, based on respondent answers to the individual REP items. If respondents do not answer all the items belonging to a scale or domain in a similar manner, the reliability of that dimension goes down. Research conducted over the past ten years has established definite response patterns that can be used for comparison with new data sets. Scales and domains with Cronbach alpha values $\geq$ 0.6 are considered to confirm the structures defined in previous research.[36]

The reliability analysis on the clustering of the Sierra REP items into scales and domains strongly confirm the recommended structures proposed by Driver. This confirmation indicates there are strong similarities between the REP responses of Sierra recreationists and users surveyed in previous studies.

---

[36]A more detailed discussion of the Sierra REP reliability analysis is in Appendix F.

VI. PILOT STUDY OF THE ELEMENTS OF THE RECREATION OPPORTUNITY SPECTRUM SYSTEM

One objective of this research was to pilot test questions to verify users' preferences for the characteristics incorporated in the Recreation Opportunity Spectrum (ROS) system for inventorying and classifying recreation resources. The selection of specific characteristics was based on the resource, social, and managerial features which were considered most relevant to ROS class identification. Combined, the winter and summer research studies incorporated three different question formats to elicit user preferences for the ROS characteristics.

Winter Recreation Opportunity Spectrum Questions

Two separate ROS question formats were pilot tested during the winter study. One of those formats asked respondents to mark a recreation location on a map that was representative of the area where they recreated in their "most important" activity. Then, based on what they could recall about the area, they identified specific resource, social, and managerial characteristics that they felt were representative of their recreation location.[37] The second ROS format was distributed to a separate sample of winter users to determine which ROS characteristics the recreationists liked, and which overall ROS settings were preferred.[38] The data collected from the SNF winter users from each format are discussed below.

---

[37]Refer to Appendix A, Figure A-2 (Winter Yellow) for specific question format.

[38]Refer to Appendix A, Figure A-3 (Winter Green) for specific question format.

ROS Characteristics of the Recreation Environment

Twelve resource, social, and managerial characteristics pertinent to ROS inventorying were rated by each respondent. Recreationists placed a check in one of seven spaces between labelled end points (semantic differentials) which best described the area where recreation participation took place. Table 63 shows the percent distribution of responses for each characteristic. At least 25 percent of the respondents felt that sights and sounds of man were quite evident and many motorized vehicles were present. Overall, many of the characteristics showed a good distribution of responses in each response category.

Since many of the characteristics described the same general concept, individual characteristics were grouped (clustered) into broader categories, each describing a distinct ROS characteristic.[39] The categories were size of area, amount of regulation and development, opportunities for challenge and use of outdoor skills, and remoteness of area. The means across all respondents for each of these characteristic groups is specified in Table 64. Means near 1.0 on any of the characteristics are indicative of the primitive end of the spectrum, while mean scores near 7.0 describe more developed conditions. The scale with scores closest to the primitive end is opportunities for challenge and use of outdoor skills. The mean for this characteristic indicates that winter users felt the area where they recreated in the SNF offered many opportunities for challenge and use of outdoor skills. Responses on the remoteness scale averaged approximately halfway between very remote (1.0) and not very remote (7.0).

---

[39] Appendix G, Table G-1 documents a complete breakdown of the characteristics belonging to each cluster. Means, standard deviations, and number of respondents are listed along with the Cronbach alpha values for reliability of each cluster.

Table 63. Respondents' perceptions of the characteristics of the area they engaged in their most important activity in the Sierra National Forest (Winter, 1979).[a]

	Percentage of Responses in Each Category[b]								Number of Respondents
Large[c]	17	12	23	21	14	9	5	Small[c]	311
Had no facilities for visitor use	16	17	16	22	15	10	5	Had many facilities for visitor use	398
Offered many opportunities for outdoor challenges	23	24	25	17	7	3	2	Offered no opportunities for outdoor challenges	402
Sights and sounds of man were practically non-existent	9	10	14	12	13	16	25	Sights and sounds of man were quite evident	403
Had no other users	5	12	12	15	17	17	24	Had many other users	400
Offered many opportunities to use outdoor skills	22	27	19	19	8	5	2	Offered no opportunities to use outdoor skills	398
Provided good opportunity to realize a sense of remoteness or isolation from civilization	14	15	23	13	14	13	8	Provided no opportunity to realize a sense of remoteness or isolation from civilization	398
Demanded much physical effort to reach your destination	9	11	14	18	13	18	17	Demanded to little physical effort to reach your destination	400
Management actions and controls were not apparent	12	10	14	23	16	12	14	Management actions and controls were very apparent	397
No motorized vehicles were present	15	7	5	12	12	18	31	Many motorized vehicles were present	398
Provided good opportunity to get far away from roads with motorized vehicles	22	15	11	17	10	13	13	Provided no opportunity to get far away from roads with motorized vehicles	390

[a]Some items have been rearranged for this table such that all of the less developed conditions are on the left and the most developed conditions on the right.

[b]Percentage may not total 100 due to rounding.

[c]These descriptions are the labelled end-points of a seven-point response format or scale. Respondents checked one of the seven blank spaces between the end-points according to their perception of the area they recreated in their most important activity (See Appendix A, Figure A-2 (Winter Yellow), Question V).

Table 64. Means and standard deviations for respondents' perceptions of the area where they engaged in their most important activity in the Sierra National Forest (Winter, 1979).

Characteristics[a]	Mean[b]	Standard Deviation[c]	Number of Respondents
1. Size of area (1=large; 7=small)	3.5	1.7	311
2. Amount of regulation and development at area (1=none; 7=much)	3.8	1.5	391
3. Opportunities for challenge and use of outdoor skills (1=many; 7=none)	2.8	1.3	396
4. Remoteness of area (1=very remote; 7=not remote)	4.4	1.5	401

[a]These characteristics are described by the end-points (in parentheses) of a seven-point response format. Characteristics 2, 3, and 4 each are combined from several items on the questionnaire describing the same general concept. Refer to Appendix G, Table G-1 for more details.

[b]Means are based on responses to a seven-point response format.

[c]Standard deviation (S.D.) is a measure of variation in the responses around the mean score.

Mean differences from a Student-Newman-Keuls test between three of the major most important activity groups on the scales delineating the ROS characteristics are displayed in Table 65. At least one difference was isolated on each of the scales. Overall, recreationists engaging in activities more often associated with primitive recreation environments tended to rate the ROS characteristics of their selected areas toward the primitive end of the spectrum. Cross-country skiers, who probably ventured further in the backcountry than winter fishermen, scored three of the four characteristics significantly lower (more primitive) than fishermen. As would be expected, the downhill skiers rated China Peak Ski Area more toward the developed end of the spectrum than users in other activity groups rating their environments.

Comparison of the Recreation Opportunity Spectrum Characteristics by Zone. While the analysis discussed above is useful for describing respondents' perception of the characteristics of the area where they engaged in recreation, more relevant information is obtained if the zone (area) where the recreation occurred is tied to the perceptions of the area. Recalling that respondents were asked to indicate on a map one specific area where they participated the most in their "most important" activity, the coding for the zones where the recreation occurred is delineated in Figure 4.[40] The percentages and number of respondents engaging in recreation in each zone were previously discussed and are listed in Table 21.

Five major use zones were selected to compare mean differences between zones based on user perceptions of the characteristics of each zone. The zones having adequate sample sizes for the Student-Newman-Keuls test for differences were zones 3, 4, 5, 6, and 10 (Table 66). The size of area scale was the only

---

[40]It is important to remember that the SNF was noted zoned for ROS classes. The zones mentioned here are only used to categorize recreation participation by area.

Table 65. Significant differences between respondents' perceptions of the characteristics of the area where they recreated. Respondents were grouped by their most important activity in the Sierra National Forest (Winter, 1979).

Characteristics[a]	Activity Group 1 Fishing (N=47)[b] Mean[c]	2 Downhill Skiing (N=102)[b] Mean[c]	3 Cross-Country Skiing (N=69)[b] Mean[c]	Groups That Differ Significantly[d]
1. Size of area (1=large; 7=small)	2.8	4.0	3.1	2>3,1
2. Amount of regulation and development of area (1=none; 7=much)	4.2	4.6	2.7	2,1>3
3. Opportunities for challenge and use of outdoor skills (1=many; 7=none)	3.0	2.8	2.5	1>3
4. Remoteness of area (1=very remote; 7=not remote)	4.7	5.4	3.4	2>1>3

[a]These characteristics are described by the end-points (in parentheses) of a seven-point response format. Characteristics 2, 3, and 4 each are combined from several items on the questionnaire describing the same general concept. Refer to Appendix G, Table G-1 for more details.

[b]Calculations are based on at least the number of respondents indicated by N.

[c]Means are based on responses to a seven-point response format.

[d]This column indicates that each activity group (1-3) to the left of the ">" has a mean that is significantly greater than the mean of each group to the right, based on the Student-Newman-Keuls test ($p \leq .05$). These are the only significant differences between any of the activity group means for each characteristic.

Figure 4. Use Zones.

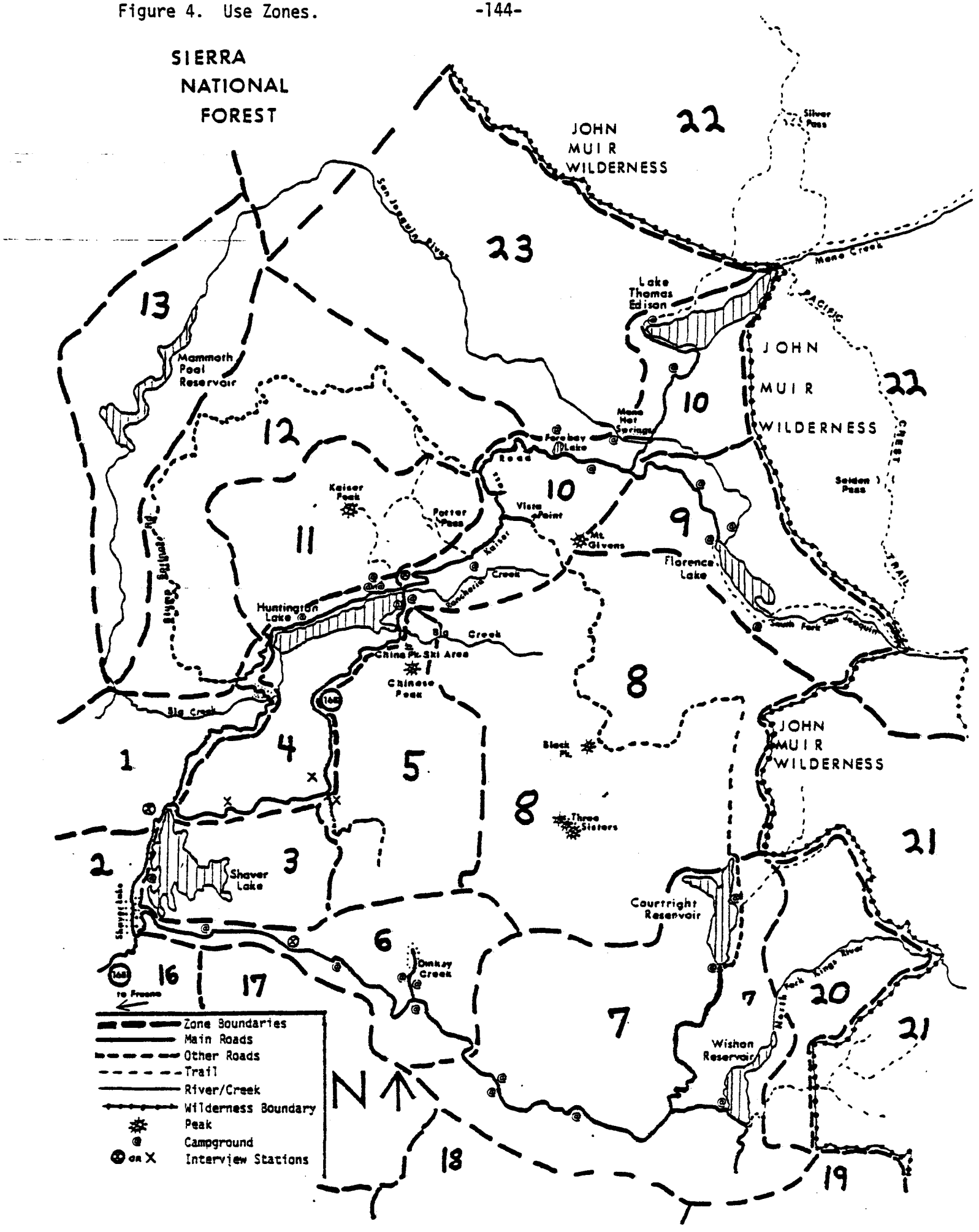


Table 66. Significant differences between respondents' perceptions of the characteristics of the area where they recreated. Respondents were grouped by the zone (area) where they recreated in the Sierra National Forest (Winter, 1979).

Characteristics[b]	Zone[a] 3 (N=24)[c] Mean[d]	4 (N=60)[c] Mean[d]	5 (N=141)[c] Mean[d]	6 (N=16)[c] Mean[d]	10 (N=21)[c] Mean[d]	Zones That Differ Significantly[e]
1. Amount of regulation and development of area (1=none; 7=much)	4.3	3.6	4.1	3.7	2.6	3,5,6,4>10
2. Opportunities for challenge and use of outdoor skills (1=many; 7=none)	3.4	2.7	2.8	3.4	2.4	3,6>10
3. Remoteness of area (1=very remote; 7=not remote)	5.1	4.0	5.1	4.7	3.3	3,5>4,10 6>10

[a]Zones which have fewer than 15 respondents are not included in this analysis.

[b]These characteristics are described by the end-points (in parentheses) of a seven-point response format. Characteristics 1, 2, and 3 each are combined from several items on the questionnaire describing the same concept. Refer to Appendix G, Table G-1 for more details.

[c]Calculations are based on at least the number of respondents indicated by N.

[d]Means are based on response to a seven-point response format.

[e]This column indicates that each zone (3-10) to the left of the ">" has a mean that is significantly greater than the mean of each zone to the right, based on the Student-Newman-Keuls test ($p \leq .05$). These are the only significant differences between any of the zone means for each characteristic.

scale that did not isolate any differences between zones. Respondents from zone 10 had the lowest mean scores on the three characteristics showing differences. This indicates that people visiting zone 10 consistently perceived it to be the most primitive area, if compared to respondent perceptions of area characteristics in the other zones. Although all are not significantly different from other zones, the means from zone 4 are second lowest after zone 10. Visitors to the other three zones (3, 5, and 6) were less extreme in their responses, and generally rated their areas slightly toward the developed end of the spectrum.

Since only a subsample of the winter users received the map ROS question and the map was only filled out correctly by 60 percent of the respondents, sample sizes in most activity groups (by zone) were too small to compare area characteristics by activity by zone. Additionally, downhill skier activity was restricted to one area, so comparisons were not possible for that group. Only cross-country skiers had a large enough sample size in two zones to permit analysis. A Student's t-test found only one characteristic scale showing differences between cross-country skiers in zone 4 and zone 5 (Table 67). Cross-country skiers in zone 5 rated that area less remote than skiers rating remoteness of zone 4.

People's Preferences for Recreation Opportunity Spectrum Settings and Characteristics

The second ROS format examined recreationists' overall preferences for five ROS settings and their preferences for the characteristics comprising each of those settings, regardless of where they recreated in the SNF. Therefore, these analyses taped users' preferences for the types of settings they would prefer to engage in when doing their most important activity in the SNF, and

Table 67. Significant differences between cross-country skiers in zones 4 and 5 based on their perceptions of the characteristics of their respective zones. Respondents sampled in the Sierra National Forest (Winter, 1979).[a]

Characteristic[b]	Zone 4 (N=26)[c] Mean[d]	Zone 5 (N=26)[c] Mean[d]
Remoteness of Area (1=very remote; 7= not remote)	3.0	3.9

[a]These groups include only respondents who indicated cross-country skiing as their most important activity. Significant differences are based on a Student's t-test ($p \leq .05$). Only one significant difference was found across all the characteristics.

[b]This characteristic is described by the end-points (in parentheses) of a seven-point response format. The characteristic is combined from several items on the questionnaire describing the same general concept. Refer to Appendix G, Table G-1 for more details.

[c]Calculations are based on at least the number of respondents indicated by N.

[d]Means are based on response to a seven-point response format.

not what their preferences were when they engaged in that activity in the SNF. This subsample of winter users received five lists of characteristics, each describing a different recreation setting (intended to represent characteristics of primitive, semi-primitive non-motorized, semi-primitive motorized, roaded natural, and semi-rural recreation environments). Eight characteristics were used to describe each setting. Respondents were then asked to indicate whether they liked, disliked, or considered unimportant each listed characteristic based on recreation in their "most important" activity.[41] This question was primarily used to familiarize the respondents with the characteristics of each setting. A second question, using a seven-point response format ranging from +3 (very favorable) to -3 (very unfavorable), asked respondents to rate how favorable each of the five settings were to them for participation in their listed "most important" activity.

Winter users visiting the SNF felt the bundle of characteristics describing the semi-primitive non-motorized setting was most favorable for recreation participation (Table 68). The primitive setting was favored second most followed by semi-primitive motorized, roaded natural, and semi-rural. The semi-rural environment was considered slightly unfavorable by respondents.

A most important activity breakdown in conjunction with a Student-Newman-Keuls test for mean differences on the five settings is shown in Table 69. A comparison of downhill skiers to cross-country skiers and fishermen gives predictable results. Downhill skiers are generally restricted to a fixed environment that is more developed than the environment used by recreationists participating in other activities. Therefore, the downhill skier preferences

---

[41]The percentage of responses in each category for all the characteristics is in Appendix G, Table G-2.

Table 68. Recreation setting preference means for all respondents sampled in the Sierra National Forest (Winter, 1979).

Recreation Settings	Mean[a]	S.D.[b]	Rank Order[c]
Setting 2 - Semi-Primitive Non Motorized	1.5	1.7	1
Setting 1 - Primitive	1.2	2.0	2
Setting 3 - Semi-Primitive Motorized	1.0	1.7	3
Setting 4 - Roaded Natural	0.7	2.0	4
Setting 5 - Semi-Rural	-0.8	2.3	5

[a]Means are based on responses to a seven-point response format ranging from +3 (very favorable) to -3 (very unfavorable). Calculations are based on at least N=146 respondents.

[b]Standard deviation (S.D.) is a measure of variation in the responses around the mean score.

[c]Ranks are based on mean scores on the recreation setting items with tied scores given the same rank.

Table 69. Significant differences between the setting preferences of respondents belonging to specific most important activity groups. Respondents were sampled in the Sierra National Forest (Winter, 1979).

Recreation Settings	Activity Group 1 Fishing (N=22)[a] Mean[b]	2 Downhill Skiing (N=44)[a] Mean[b]	3 Cross-Country Skiing (N=24)[a] Mean[b]	Groups that Differ Significantly[c]
Setting 1 - Primitive	1.7	-0.1	2.0	3,1>2
Setting 2 - Semi-Primitive Non Motorized	1.9	0.4	2.4	3,1>2
Setting 3 - Semi-Primitive Motorized	1.7	0.4	1.1	1>2
Setting 4 - Roaded Natural	1.1	1.2	-0.2	2,1>3
Setting 5 - Semi-Rural	-0.4	0.3	-2.4	2,1>3

[a]Calculations are based on at least the number of respondents indicated by N.

[b]Means are based on responses to a seven-point scale ranging from +3 (very favorable) to -3 (very unfavorable).

[c]This column indicates that each activity group (1-3) to the left of the ">" has a mean that is significantly greater than the mean of each group to the right, based on the Student-Newman-Keuls test ($p \leq .05$). These are the only significant differences between any of the activity group means for each recreation setting.

for the roaded natural setting were consistent with the only opportunities available for their particular activity. Fishermen and cross-country skiers were more varied in their preferences than the downhill skiers. The overall order of preference for individual settings reflected in the means of the fishermen and cross-country skiers was identical. Yet, differences existed between these two user groups in the strength of their preferences. For example, cross-country skiers considered a semi-rural environment quite unfavorable for skiing, whereas fishermen exhibited more flexibility by rating that environment neither favorable nor unfavorable.

Summer Recreation Opportunity Spectrum Questions

The summer research questionnaires pilot tested one question format to verify user preferences for specific characteristics of the recreation setting. The selection of characteristics was based on the resource, social, and managerial features relevant to the recreation opportunity spectrum (ROS) system. The recreationists checked the characteristics or features they preferred the most during participation in their listed "most important" activity.[42]

Tables G-3 to G-11 in Appendix G summarize the distribution of responses for all Sierra recreationists for each list of characteristics. The percentages in each response category are also disaggregated by the most important activity groups. Campers away from the automobile generally preferred recreational setting characteristics more primitive than the features favored by the other groups of recreationists. On six characteristics (amount of motorized use permitted, density of users on trails, density of users off trails, facilities,

---

[42]Refer to Appendix A, Figures A-4 (Summer Buff) or A-5 (Summer Yellow) for specific question format.

remoteness, and other resource uses), the campers away from the automobile had the highest percentage of responses in categories that could be described as the most primitive. The response categories defining the developed end of the spectrum for each characteristic show very few responses across all nine characteristics. Only evidence of past users and control or regulation of users report more than 15 percent of the responses in the most developed categories. The evidence of past users characteristic only contained three response categories. This confined the range of responses and focused a higher percentage of the answers in each category. Control and regulation of users has four response categories, and generally shows user preferences favoring more control or regulation.

Table 70 presents ROS preferred characteristics scenarios for each of the most important activity groups. For each characteristic the response category revealing the highest percentage of responses from each activity group is listed in the table. Although this list illustrates the most preferred levels of each feature, percentage values from Tables G-3 to G-11 (Appendix G) were sometimes very close between response categories. In many instances, the percentages in three categories varied by just a few points. The overall distribution of the majority of responses would then provide better information than the most preferred level.

Control or regulation of users and other resource uses both show one response category (level) preferred by all activity groups. Three other ROS features have three activity groups all preferring the same level of the listed characteristic. The facilities and natural environment characteristics indicate the greatest range of preferred levels by the different activity groups. Hikers and campers away from the automobile preferred an

Table 70. Degree or level of specific ROS characteristics most preferred by respondents sampled in the Sierra National Forest, grouped by their most important activity (Summer, 1979).[a]

ROS Characteristics	Camping Near Auto	Camping Away From Auto	Hiking	Fishing
Amount of Motorized Use Permitted	Motor vehicles are allowed on main roads and on a few designated backcountry trails and roads	Motor vehicles are permitted only on main roads in the area	Motor vehicles are permitted only on main roads in the area	Motor vehicles are allowed on main roads and on a few designated backcountry trails and roads
Density of Users On Trails	Moderate number of contacts (5-10 parties/day) on trails	Very low number of contacts (less than 2 parties/day) with other users on trails	Moderate number of contacts (5-10 parties/day) on trails	Moderate number of contacts (5-10 parties/day) on trails
Density of Users Off Trails at Picnicking, Camping and Other Areas	Moderate number of contacts (5-10 parties/day) with users off trails	Very low number of contacts (less than 2 parties/day) with other users off trails	Moderate number of contacts (5-10 parties/day) with users off trails	Moderate number of contacts (5-10 parties/day) with users off trails
Evidence of Past Users	Evidence of past users is hardly ever found	Evidence of past users is hardly ever found	Evidence of past users is hardly ever found	Occasional evidence of past users is found
Remoteness	Most of the area is at least ½ mile from developed roads, but a little of it is near developed roads	Nearly all the area is remote; there are a few developed roads which are far apart	Nearly all the area is remote; there are a few developed roads which are far apart.	Most of the area is at least ½ mile from developed roads, but a little of it is near developed roads
Natural Environment	Environment is predominantly unmodified from natural	Environment is unmodified by man except for foot trails	Environment is unmodified by man except for foot trails	Environment is moderately modified from natural by human developments
Control or Regulation of Users	Managed with moderate control or regulation of users	Managed with moderate control or regulation of users	Managed with moderate control or regulation of users	Managed with moderate control or regulation of users
Facilities	Several rustic facilities are provided but no modern, high standard ones	Area has no developed facilities	Only a very few rustic facilities are provided	Several rustic facilities are provided but no modern, high standard ones
Other Resource Uses	Resource uses like timbering and grazing do exist but are not very evident	Resource uses like timbering and grazing do exist but are not very evident	Resource uses like timbering and grazing do exist but are not very evident	Resources uses like timbering and grazing do exist but are not very evident

[a]Each description listed under the most important activity group is the most frequent response to the appropriate ROS characteristic. The specific ROS question is shown in Appendix A, Figures A-4 and A-5, Question VII.

environment unmodified by man. Campers near the automobile favored a predominantly unmodified natural environment, whereas fishermen liked an environment moderately modified from natural by human development. Scenarios for each activity can be determined by reading down the columns for each activity group.

VII. PILOT STUDY OF THE RELATIONSHIP BETWEEN RECREATION EXPERIENCE PREFERENCES AND CONDITIONS OF HOME AND WORK ENVIRONMENTS

Two other questions besides the three ROS questions were pilot tested. The focus of these questions was to ascertain resondents' perceptions of their home neighborhoods and work environments to explore the relationship between users' expected and desired REP's and the perceived conditions users have of the areas where they live and work. The home neighborhoods and work environments each were described by a series of eight items designed to measure different conditions inherent to each environment. Respondents checked one of seven blank spaces between two labelled end points (describing each condition) according to their perception of which end point best described the condition of their home or work environment.[43] For analysis, the individual conditions were arranged so the left end point described less of the listed condition, and the right end point represented more of the listed condition. Each blank space was coded left to right from 1 to 7, creating a seven-point response format.

Most respondents considered their home neighborhoods friendly, well kept up, and attractive (Table 71). Based on the means in Table 71, there were no overall negative feelings on any of the conditions describing the home neighborhoods. Ratings for the amount of green space, the number of people, and the number of houses were all neutral.

---

[43] See Appendix A, Figures A-5 (Summer Buff) or A-5 (Summer Yellow), question VIII for more details on the response format.

Table 71. Neighborhood condition item means and standard deviations for all respondents sampled in the Sierra National Forest (Summer, 1979).

Neighborhood Conditions[a]	Mean[b]	S.D.[c]
Unfriendly place to live/friendly place to live	5.9	1.2
Not too many people/too many people	4.0	1.9
Little open, green space/much open, green space	3.9	2.0
Poorly kept up/well kept up	5.5	1.6
Polluted air/clean air	4.4	1.9
Not too many houses/too many houses	4.2	1.8
Unattractive buildings/attractive buildings	5.0	1.6
Noisy/quiet	4.4	1.8

[a]The neighborhood conditions are described by a series of items, each having two labelled end-points (separated by a slash above). Respondents checked one of seven blank spaces between the end-points according to their perception of their neighborhood environment (see Appendix A, Figure A-4 and A-5, Question VIII).

[b]Means are based on responses to a seven-point response format. Also, these calculations are based on at least N=917 respondents.

[c]Standard deviation (S.D.) is a measure of variation in the responses around the mean score.

Means on the conditions of the work environments indicate more perceived variability in the work condition than neighborhood conditions. These are fewer overall neutral means, and the scores range from 2.5 to 5.5 (Table 72). The two scores of 5.5 indicate the majority of the respondents felt their jobs were challenging and interesting. Most of the respondents also worked closely with other people at a slightly hectic pace.

Very few mean differences between respondents in four "most important" activity groups were discerned from a Student-Newman-Keuls test on the home and work conditions (Table 73). Only three neighborhood conditions and one work condition supported mean differences. Although these differences are statistically significant, the magnitude of the largest mean difference is small (.6). Fishermen means indicate that they live in a friendlier environment with cleaner air than the hikers. Another difference shows that hikers might be found working alone more often than members of one of the other activity groups.

Pearson Product-Moment Correlation Coefficients were used to determine the strength of the relationship between users responses to the REP scales and their perceptions of their home and work environments. The results of this analysis indicated fairly weak relationships between the two variables. This does not indicate no relationships exist, only that at this broad level of analysis, there is so much variability in the responses that patterns of similarity are not evident. It is beyond the scope of this report to perform all the analyses needed to explore possible relationships. Two directions for future analysis might include correlation of the REP's to scales of neighborhood and work conditions, and a Student-Newman-Keuls test for mean differences on the REP scales between groupings of respondents based on low, medium, and high scores on the neighborhood and work conditions.

Table 72. Work condition item means and standard deviations for all respondents sampled in the Sierra National Forest (Summer, 1979).

Work Conditions[a]	Mean[b]	S.D.[c]
Not mentally exhausting/mentally exhausting	4.5	1.9
Not physically exhausting/physically exhausting	3.6	1.9
Not usually boring/usually boring	2.5	1.8
Low pressure job/high pressure job	4.9	1.8
Not challenging/challenging	5.5	1.6
Mostly work alone/work closely with others	5.4	1.8
Not interesting/very interesting	5.5	1.6
Not usually hectic/usually hectic	4.8	1.8

[a]The work conditions are described by a series of items, each having two labelled end-points(separated by a slash above). Respondents checked one of seven blank spaces between the end-points according to their perception of their work environment (See Appendix A, Figure A-4 and A-5, Question VIII).

[b]Means are based on responses to a seven-point response format. Also, these calculations are based on at least N=895 respondents.

[c]Standard deviation (S.D.) is a measure of variation in the responses around the mean score.

Table 73. Neighborhood and work condition items showing significant differences between mean responses of groups based on most important activity of respondents sampled in the Sierra National Forest (Summer, 1979).

Conditions[a]	Activity Groups 1 Camping Near Auto (N=121)[b] Mean[c]	2 Camping Away From Auto (N=112)[b] Mean[c]	3 Hiking (N=172)[b] Mean[c]	4 Fishing (N=236)[b] Mean[c]	Groups That Differ Significantly[d]
Unfriendly place to live/ Friendly place to live	5.9	5.6	5.6	6.1	4>3,2
Polluted air/ Clean air	4.4	4.2	4.1	4.7	4>3
Not too many houses/ Too many houses	4.1	4.6	4.4	4.0	2>4
Mostly work alone/ Work closely with others	5.6	5.6	5.0	5.5	1,2,4>3

[a]These conditions are described by the labelled end-points (separated by a slash) of a seven-point response format (see Appendix A, Figure A-4 and A-5, Question VIII).

[b]Calculations for each condition are based on at least the number of respondents indicated by N.

[c]Means are based on responses to a seven-point response format.

[d]This column indicated that each activity group (1-4) to the left of the ">" has a mean that is significantly greater than the mean of each group to the right based on the Student-Newman-Keuls test ($p \leq .05$). These are the only significant differences between any of the activity group means for each condition.

VIII. SUMMARY AND DISCUSSION

The primary objectives of this research were to identify and quantify the recreation experience preferences of users visiting the Sierra National Forest, and compare those preferences to the experience preference patterns formulated from previous research studies. Several other objectives are listed in the Introduction to this report. These sub-objectives were developed as the research progressed based on information needs expressed by managers, and on the type of information research could provide without sacrificing the basic research objectives. Since much of the information from the sub-objectives has more direct application and relevance to immediate information needs of managers (especially at the District level), those results are summarized in this section along with the overall winter and summer user preferences for recreation experiences and the comparisons of the REP's of Sierra users to recreationists' REP's from previous research.

Overall Recreation Experience Preferences of SNF Users

The major focus of this research effort was the quantification of user preferences for each of 42 dimensions (scales) measuring identifiable recreation outcomes. Overall, the winter and summer visitors of the SNF "strongly" valued 13 of the REP scales. Most of these highly valued experiences are in three general REP groupings (domains) described by Relationships With Nature, Escape Personal-Social Pressure, and Escape Physical Pressure. The Relationships With Nature domain contained REP items perceived by users to add the most to their satisfaction followed by items in the two escape related

concepts. While means indicated that no REP scale or domain detracted from user perceived satisfaction, several scales (Risk Taking, Observing Other People, Risk Avoidance, Leading Others, and Social Recognition) were all rated neutral, neither adding to nor detracting from user satisfaction. Several general statements about visitors of the Sierra National Forest can be inferred from the results of the recreation experience preference analysis. Each of these are discussed below.

First, similarities between the recreation experience preferences of winter and summer users indicate that users of the SNF have distinct patterns in their expected and desired outcomes of recreation participation. Inherent in these patterns are identifiable recreation experiences that could affect resource management decisions, since the bundle of most highly valued experiences contain specific dimensions dependent on the quality of the resource base. Scenery, nature experiences, tranquility, open space, privacy, and crowding are all influenced by decisions of resource managers and extremely important to the perceived satisfaction of recreation users. Awareness by resource managers of the recreation experiences valued (most and least) by users can help managers provide better quality recreation opportunities.

Second, Sierra users engaging in different recreation activities have different preferences for recreation experiences. While Student-Newman-Keuls tests isolated many REP mean differences across all activity groups, the largest and most consistent differences occurred between activity groups whose preferred recreation environments were different. For example, backpackers and swimmers would be expected to have large REP differences, since backpackers normally prefer remote environments and swimmers rural or urban areas. Two of the more prevalent REP differences were between cross-country

skiers and downhill skiers, and between campers near the automobile (car campers) and the other activity groups.

One consistent trend throughout the winter analyses was the difference between cross-country skiers and downhill skiers. These two skier groups differed on 17 of the 42 REP scales. Some of the larger differences occurred on the Tranquility, Privacy, Escape Crowds, Meeting New People, and Observing Other People scales. All these scales were among the REP's which exhibited the strongest user opinions (i.e., the most or least valued recreation experiences). Consistently, cross-country skiers favored less people than the downhill skiers who valued meeting new people and general social interaction.

Most of the significant summer REP activity group mean differences occurred between car campers and one or more of the other "most important" activity groups. REP mean differences indicated that car campers valued social interaction with other people, physical rest, and avoiding risks more than hikers and campers away from the automobile. Although fishermen tended to have similar patterns of experience preferences as car campers, the car campers were often more opinionated and variable in their responses.

Third, similarities and differences in the experience preferences of recreationists residing in different areas of California were not evident from the winter and summer studies. Analysis of the winter data showed that residents from Fresno, San Francisco, and Los Angeles did have significantly higher means on two escape related REP dimensions than local residents, and that other scales measuring user preferences for excitement and physical activity were scored higher by San Francisco users than users from the other areas. Yet, similar analysis of the summer REP's did not confirm these differences. Several other analysis directions might be explored at a later

date to identify possible relationships between users from different areas. One procedure would divide respondents by residence location and investigate relationships between recreation experience preferences and respondents' perceptions of their home neighborhoods and work environments.

Recreation Experience Preference Comparisons

This study incorporated three procedures to explore for similarities and differences of Sierra REP scores with scores from users recreating in similar environments and activities investigated in previous studies. The first procedure compared means on the REP scales and domains of SNF recreationists to means of users visiting other areas. Procedures two and three each used a statistical test to help identify the strength of the patterns and relationships between data collected in other parts of the country and in the SNF.

Results from the comparisons of the Sierra REP means to means of users studied previously support the conclusion that overall patterns in user preferences exist between different areas of the country, when the recreation participation is in similar environments and activities. The most significant patterns were isolated on the adds-detracts REP response format for comparisons of the Sierra data with the most recent research results. Additionally, comparisons from individual areas exhibited distinct patterns in the differences with the Sierra study across several activities. Essentially, there appear to be overall patterns of similar REP's for different areas, and distinctive patterns or characteristics inherent to individual areas across several activities.

Overall, the SNF REP means were slightly higher than the means from areas in different parts of the country. Examination of only the scales

which exhibited large mean differences revealed fewer trends. Only one of these scales (Equipment) consistently showed large mean differences across both winter and summer analyses. Apparently, users of the SNF value using and testing their equipment more than recreationists in other parts of the country. Although less consistent, several other scales showed large differences on dimensions focusing on interaction with other people during recreation engagements. These scales measuring a variety of social experiences were not the highest valued REP's, but did identify some of the subtle differences between individual areas.

The two statistical procedures each strongly confirmed relationships between the REP response patterns of Sierra users and recreationists in other parts of the country. Results of the correlation analysis inferred a strong relationship between the overall pattern of REP means from the Sierra data and data from previous research. Another statistical test, reliability analysis, confirmed that the Sierra users responded to each scale and domain in a similar manner to users from past research. Results from this test indicated that the Sierra scale and domain structures held together well statistically, compared to recommended structures from previous research.

Management Actions and Conditions of the Sierra National Forest

One of the more important sub-objectives of this research was to identify user preferences for specific issues of special concern to managers of the SNF. Some of the conclusions determined from the analyses of user preferences for the "possible" management actions and user perceptions of the conditions of the SNF are discussed below.

1. Although winter and summer users of the Sierra National Forst generally favored most of the "possible" management actions and did not feel there were too many controls or regulations effecting their recreation behavior, there is considerable data inferring that management actions should be carefully considered before implementation.

Examination of most of the data describing overall user preferences for the management actions showed a large variability in the responses to the individual management actions. Large standard deviations and response category percentage distributions verified that user preferences were polarized near both scale end points on many issues. Several other questions exhibited similar response patterns. The summary of respondent indications on maximum limits for several types of party requirements identified two groups of recreationists with opposite opinions. Approximately 25 percent of the users responding to each party requirement wanted no limitations on party composition (size, number of pack and saddle animals, number of vehicles, camping limits), while another group of users preferred strict limits. Implementation of these party composition requirements or several of the management actions favored by recreationists could meet stiff opposition from the members of the polarized group. Some of this opposition could be lessened through careful identification of the characteristics and preferences of different groups reacting to issues. This report contains considerable information about group preferences (specifically activities), and special analyses could be conducted to augment this data if necessary.

2. Results of the analysis of questions related to management issues support the conclusion (stated in the REP summary) that users engaging in different recreation activities have different recreation related preferences.

Most of the results supporting this conclusion were obtained using Student-Newman-Keuls tests to isolate mean differences between activity groups preferences for possible management actions. These analyses also supported activity group conclusions identified as part of the REP analyses. Activity group differences on the management actions could be linked to differences on selected experience preference scales. For example, management action mean differences showed that hikers and campers away from the automobile (remote campers) favored limitation, regulation, and redistribution of use in backcountry and wilderness areas more than fishermen and campers near the automobile (car campers). Results from the REP analysis indicated that the hikers and remote campers valued Privacy more, and Meeting New People and Observing Other People less than the fishermen and car campers. Therefore, patterns identified between user groups as part of the REP analysis were confirmed by similar response characteristics for questions pertaining to management issues.

3. Recreation users perceiving the environment to be damaged, crowded, etc., tend to be more amenable to regulations or limitations on use than users who perceive no problem exists.

Analysis of the data from several questions support the hypothesis that users' perception of the condition of the environment influence their attitudes toward regulations. One specific example was the question asking respondents whether or not they felt the wilderness areas were socially overcrowded or ecologically overused. Users who had previously visited the wilderness areas were separated from the main sample, and then further divided into two groups based on responses to the questions about party composition requirements. One group of wilderness users preferred no party limitations, while the other

group preferred specific limits on certain characteristics of parties. The responses of these two groups on the ecological and social conditions of the wilderness areas were then compared. In all cases, the group of people not wanting restrictions on party composition had a higher percentage of respondents who felt the wilderness areas were not overcrowded or overused than the respondent group wanting party limitations. The magnitude of the differences was not as important as the overall pattern of responses across two wilderness areas.

As a sub-part of conclusion 3, another apparent trend from the data is that user management action preferences often vary between similar areas (sometimes adjacent areas) of the SNF. Information from the winter analyses indicated that users participating in the same recreation activity in different areas (use zones) of the SNF had different preferences for possible regulations limiting recreation behavior in each zone. For example, cross-country skiers visiting zone 4 strongly favored redistribution of use to lightly used areas, whereas zone 5 cross-country skiers were neutral or only slightly favored that action. Similar differences occurred between fishermen groups recreating in zones 3 and 4. Zone 4 fishermen moderately favored limiting use in heavily used areas, while zone 3 fishermen slightly opposed that limitation. Inferred from these results is the conclusion that recreationists perceive differences between similar, and sometimes identical, environments which influence their preferences for management of those areas. Specifically, where management actions are applied, could influence the mix of recreation opportunities available to users; and subsequently affect redistribution of use or relocation of specific types of users to other areas or forests.

REFERENCES

Bassett, J.R. 1979. Perceived immediate benefits realized by selected users of the Huron and Pine Rivers in Michigan. Final report submitted to B.L. Driver, Rocky Mountain Forest and Range Experiment Station, Ft. Collins, Colorado.

Brown, P.J. 1979. Study plan for the project entitled Sierra National Forest Cross-Validation User Preference Study. Unpublished document prepared under Cooperative Agreement No. 16-841-CA between Colorado State University and Rocky Mountain Forest and Range Experiment Station.

Brown, P.J., B.L. Driver, D.H. Bruns, and C. McConnell. 1979. The outdoor recreation opportunity spectrum in wildland recreation planning: development and application. In Recreation Planning and Development: proceedings of the first annual national conference, Vol. II, p. 527-538. (Snowbird, Utah, April 14-21, 1979). American Society of Civil Engineers, New York, N.Y.

Brown, P.J., B.L. Driver, and C. McConnell. 1978. The opportunity spectrum concept and behavioral information in outdoor recreation resource supply inventories: background and application. p. 73-84. In Integrated Inventories of Renewable Natural Resources: proceedings of the workshop. U.S.D.A. Forest Service General Technical Report RM-55, Rocky Mountain Forest and Range Experiment Station, Ft. Collins, Colorado.

Brown, P.J., and G. E. Haas. 1980. Relationships between the resource attributes and psychological outcomes perceived by wilderness recreationists. Final report submitted to B.L. Driver, Rocky Mountain Forest and Range Experiment Station, Ft. Collins, Colorado.

Driver, B.L. 1977. Item pool for scales designed to quantify the psychological outcomes desired and expected from recreation participation. Unpublished paper available from author at Rocky Mountain Forest and Range Experiment Station, Ft. Collins, Colorado.

Driver, B.L., and P.J. Brown. 1978. The opportunity spectrum concept and behavioral information in outdoor recreation resource supply inventories: a rationale. p. 24-31. In Integrated Inventories of Renewable Natural Resources: proceedings of the workshop. U.S.D.A. Forest Service General Technical Report RM-55. Rocky Mountain Forest and Range Experiment Station, Ft. Collins, Colorado.

Driver, B.L., and R.W. Cooksey. 1977. Preferred psychological outcomes of recreational fishing. p. 27-40. In Catch-and-release Fishing as a Management Tool: a national sport fishing symposium. (Humboldt State University, Arcata, California, September 7-8, 1977). Roger A. Barnhart and Terry D. Roelofs, editors. (Humboldt State University, California Cooperative Fishery Research Unit and California Trout, Inc., sponsors). Humboldt State University, Arcata, California.

Economic Development Council of Northeastern Pennsylvania. 1977. Human needs served by outdoor recreation in Northeastern Pennsylvania. Unpublished report available from author, Box 777, Avoca, Pennsylvania, 18641.

Haas, G.E. 1980. Maroon Bells-Snowmass user preferences. Final report submitted to B.L. Driver, Rocky Mountain Forest and Range Experiment Station, Ft. Collins, Colorado.

Manfredo, M.J. 1979. Desired psychological outcomes and management preferences for backcountry and developed site users of the Shoshone National Forest. Report submitted to B.L. Driver, Rocky Mountain Forest and Range Experiment Station, Ft. Collins, Colorado.

Mills, A.S. 1978. Psychological outcomes of Lake Tahoe downhill skiers. Draft of report for the California Department of Parks and Recreation. University of California-Davis, Davis, California.

Nie, N.H., C.H. Hull, J.G. Jenkins, K. Steinbrenner, and D.H. Bent. 1975. Statistical package for the social sciences, 2nd ed. 675 pp. McGraw-Hill Book Co., New York, N.Y.

Rauhauser, D.S. 1979. Cross-country skier preferences for the recreational setting. Unpublished master's thesis, University of Colorado, Boulder.

Revelle, W. 1977. Hierarchical cluster analysis--computer program. (xerox). Northwestern University, Evanston, Illinois.

Roggenbuck, J.W., and M.S. Dawson. 1979. Recreation experience preferences of wilderness and backcountry hikers. Final report submitted to B.L. Driver, Rocky Mountain Forest and Range Experiment Station, Ft. Collins, Colorado.

APPENDIX A

SIERRA NATIONAL FOREST QUESTIONNAIRES
(Winter/Summer, 1979)

Figure A-1
(EXIT INTERVIEW Form)

Approved
OMB No. 040-R3857
Expires June 30, 1980

VISITOR REGISTRATION

To visit (area) _____ Location of exit _____ _____

Date _____ (Time) _____ Location of entrance _____

Starting Date _____ (Time) _____ Primary method of travel _____

Number of people in group _____ (Vehicle) _____

The primary trip purpose _____ _____

How many times visited the area in the past year

___ 1) First time ___ 3) Twice ___ 5) Four times

___ 2) Once before ___ 4) Three times ___ 6) Five or more times

Using a map of the area, list all zones traversed in sequence of travel.

Travel Zones	1	2	3	4	5	6	7	8	9	10	11	12	13
# of nights in each	___	___	___	___	___	___	___	___	___	___	___	___	___
Travel Zones	14	15	16	17	18	19	20	21	22	23	24	25	26
# of nights in each	___	___	___	___	___	___	___	___	___	___	___	___	___

NAME _____

ADDRESS _____

CITY, STATE _____ ZIP _____

Completion of this form is voluntary and is not required by law or to obtain a federal benefit.

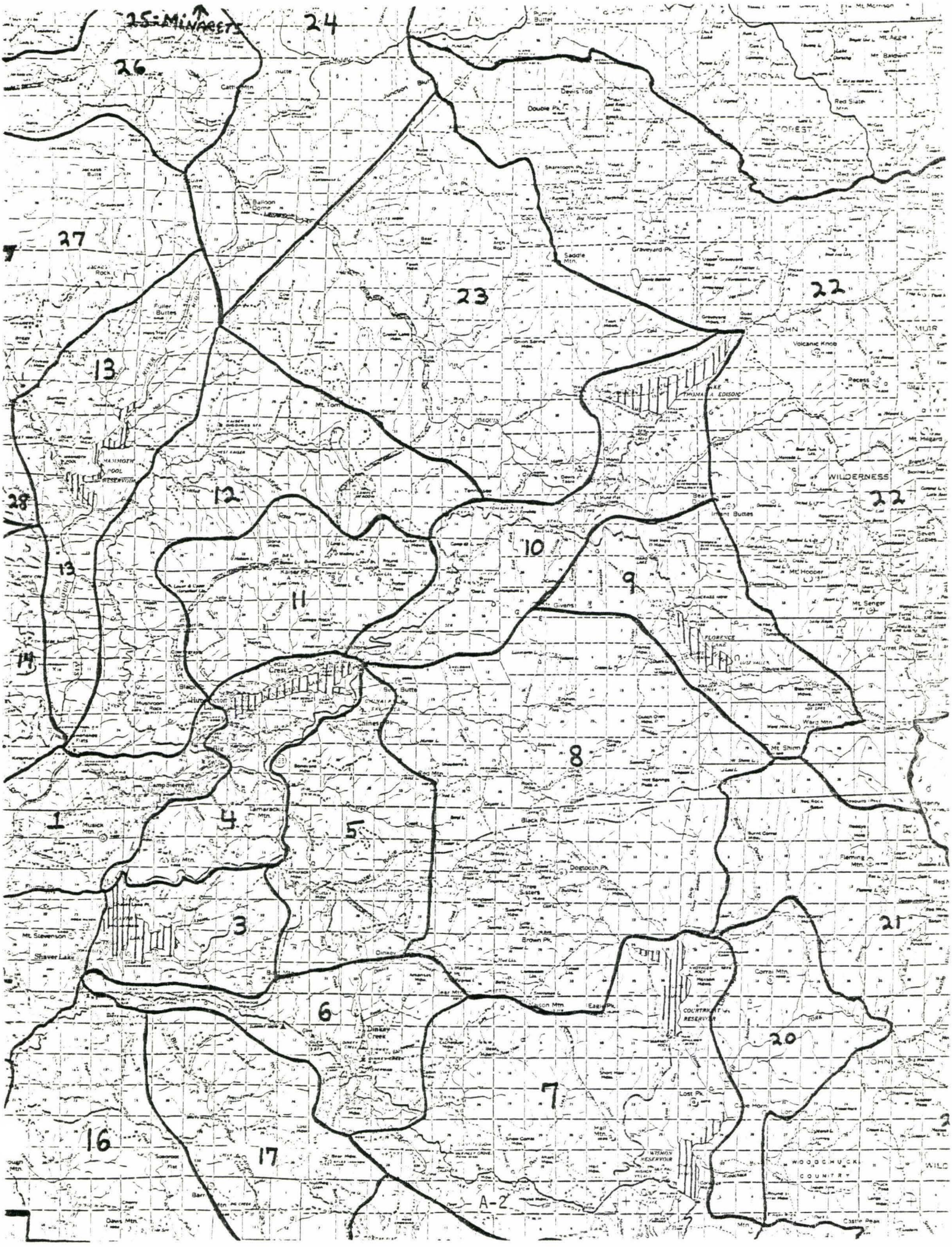

25 Minarets
24
26
27
23
22
13
12
28
10
9
11
14
8
1
4
5
3
6
7
16
17
20
21
A-2
Mt. Morrison
Red Slate Mtn.
Balloon Dome
Saddle Mtn.
Graveyard Pk.
Volcanic Knob
Mt. Hoover
Mt. Senger
Mt. Shim
Ward Mtn.
Fleming Mtn.
Corral Mtn.
Mt. Stevenson
Musick Mtn.
Lamarack Mtn.
Dogtooth Pk.
Brown Pk.
Lost Pk.
Cone Horn
Castle Pass
Dinkey Creek
Shaver Lake
Huntington Lake
Mammoth Pool Reservoir
Courtright Reservoir
Wishon Reservoir
Florence Lake
Thomas A. Edison Lake
Seven Gables
Giverns
Kaiser Pk.
Mt. Tom
Double Pk.
Davis Top
Cathedral Pk.
Mt. Hilgard
Mt. Baldwin
Volcanic Knob
Pacific Pk.
Turret Pk.
Red Mtn.
Black Pk.
Three Sisters
Dinkey
Eagle Pk.
Hall Mtn.
Bear Ridge
Merced Peak
Isosceles Butte
Fuller Buttes
Jackass Rock
Mushroom Rock
Black Rock
Cedar Creek
Camp Sierra
Davis Mtn.
Barrier Mtn.
Quail Mtn.
Sawmill Mtn.
Kaiser Ridge
Jumbo Peak
Graveyard Lakes
Onion Spring
Bear Creek
Big Creek
Mono Creek
Middle Fork
San Joaquin
Kings
Sierra
Sierra National Forest
John Muir Wilderness
Woodchuck Country

Figure A-2
(Winter Yellow)

This questionnaire has been designed to learn more about the recreation related preferences of the users of the Sierra National Forest.

I. Since October 1978, how many winter/spring visits have you made to the area where you or a member of your party was stopped for an interview last winter or spring.

One visit	2-3 visits	4-6 visits	7-15 visits	16-30 visits	Over 30 visits	1:1

II. Below are winter use issues of special concern to the managers of the Sierra National Forest. Please circle the number which best describes how much you favor (+) or oppose (-) each of the "Possible Management Actions" listed for that area. Circle only one number for each possible, but not necessarily planned, winter action.

Possible Winter Management Actions	FAVOR: Very Strongly	Strongly	Moderately	A Little	Neutral or Not Applicable	OPPOSE: A Little	Moderately	Strongly	Very Strongly	
1. Increase parking facilities in heavily used areas	+4	+3	+2	+1	0	-1	-2	-3	-4	1:2
2. Limit the number of people in heavily used areas	+4	+3	+2	+1	0	-1	-2	-3	-4	
3. Redistribute use to lightly used areas	+4	+3	+2	+1	0	-1	-2	-3	-4	
4. Develop a snow play area for tubing, etc.	+4	+3	+2	+1	0	-1	-2	-3	-4	1:5
5. Expand the present boundaries of China Peak Ski Area to provide more downhill skiing	+4	+3	+2	+1	0	-1	-2	-3	-4	
6. Encourage greater lift and trail capacity within the present boundaries of China Peak Ski Area	+4	+3	+2	+1	0	-1	-2	-3	-4	
7. Provide winter camping facilities along State Highway 168	+4	+3	+2	+1	0	-1	-2	-3	-4	
8. Provide winter camping facilities at Huntington Lake	+4	+3	+2	+1	0	-1	-2	-3	-4	
9. Other (please list) _____										1:10

The last 11 items are for cross-country skiers and snowmobilers only. All others please skip to question III.

10. Post map boards at trailheads to identify trail routes and mileages	+4	+3	+2	+1	0	-1	-2	-3	-4	
11. Rate trails according to the degree of difficulty of the terrain (i.e., skill required)	+4	+3	+2	+1	0	-1	-2	-3	-4	
12. Provide trail identification markers along the trail	+4	+3	+2	+1	0	-1	-2	-3	-4	
13. Expand trail system in heavily used areas	+4	+3	+2	+1	0	-1	-2	-3	-4	
14. Combine skiers and snowmobilers on the same trails	+4	+3	+2	+1	0	-1	-2	-3	-4	1:15
15. Provide separate trails for skiers and snowmobilers	+4	+3	+2	+1	0	-1	-2	-3	-4	
16. Develop winter trails maps	+4	+3	+2	+1	0	-1	-2	-3	-4	
17. Develop a hut system for backcountry users who wish to stay overnight	+4	+3	+2	+1	0	-1	-2	-3	-4	
18. Develop shelters for day use or emergency overnight stays	+4	+3	+2	+1	0	-1	-2	-3	-4	
19. Provide information on snow conditions in the area	+4	+3	+2	+1	0	-1	-2	-3	-4	1:20
20. Other (please list) _____										1:21

III. Please check all the activities you participated in when visiting the Sierra National Forest this past winter and spring. 1:22-4

1) ____Cross country skiing	9) ____Camping away from auto	17) ____4-wheel driving
2) ____Snowmobiling	10) ____Hiking/walking	18) ____Downhill skiing
3) ____Snowshoeing	11) ____Fishing	19) ____Getting away
4) ____Sledding tobogganning	12) ____Sightseeing/auto driving	20) ____Rock climbing
5) ____Ice skating	13) ____Photography	21) ____Exploring
6) ____Snow play	14) ____Nature study	22) ____Visiting friends/relatives
7) ____Picnicking	15) ____Hunting	23) ____Other (please list) _____ 1:44
8) ____Camping near auto	16) ____Wildlife viewing	_____ 1:45

IV. Using the activity you checked in Question III, select one activity you enjoyed the most or spent the most time doing during your visits to the Sierra National Forest. Please list the activity in the blank:

Your Activity: _____ 1:46-47

A recreation experience is affected by many factors, some are satisfying and some are not. Imagine that you were to visit the same area next year (winter/spring, 1980) to participate in the activity you listed above. Then rate how much each of the following types of experiences would either add to (+) or detract from (-) the level of satisfaction you would probably realize from that visit. Please circle only one number for each item.

Experiences	EFFECT ON SATISFACTION: ADDS TO — Most Strongly	Strongly	Moderately	Slightly	Neutral	DETRACTS FROM — Slightly	Moderately	Strongly	Most Strongly	
1. Taking it easy physically	+4	+3	+2	+1	0	-1	-2	-3	-4	
2. Being in a natural setting	+4	+3	+2	+1	0	-1	-2	-3	-4	
3. Gaining a sense of self-confidence	+4	+3	+2	+1	0	-1	-2	-3	-4	1:48
4. Doing something with your family	+4	+3	+2	+1	0	-1	-2	-3	-4	
5. Experiencing peace and calm	+4	+3	+2	+1	0	-1	-2	-3	-4	1:50
6. Viewing the scenery	+4	+3	+2	+1	0	-1	-2	-3	-4	
7. Getting away from the usual demands of life	+4	+3	+2	+1	0	-1	-2	-3	-4	
8. Being near considerate people	+4	+3	+2	+1	0	-1	-2	-3	-4	
9. Developing your knowledge of things there	+4	+3	+2	+1	0	-1	-2	-3	-4	
10. Having a change from your daily routine	+4	+3	+2	+1	0	-1	-2	-3	-4	1:55
11. Being close to nature	+4	+3	+2	+1	0	-1	-2	-3	-4	
12. Using your equipment	+4	+3	+2	+1	0	-1	-2	-3	-4	
13. Developing personal spiritual values	+4	+3	+2	+1	0	-1	-2	-3	-4	
14. Being with others who enjoy the same thing you do	+4	+3	+2	+1	0	-1	-2	-3	-4	
15. Feeling isolated	+4	+3	+2	+1	0	-1	-2	-3	-4	1:60
16. Feeling your independence	+4	+3	+2	+1	0	-1	-2	-3	-4	
17. Thinking about good times you've had in the past	+4	+3	+2	+1	0	-1	-2	-3	-4	
18. Becoming better at it	+4	+3	+2	+1	0	-1	-2	-3	-4	
19. Being near others who could help you if you need them	+4	+3	+2	+1	0	-1	-2	-3	-4	
20. Experiencing open space	+4	+3	+2	+1	0	-1	-2	-3	-4	1:65
21. Being with other members of your group	+4	+3	+2	+1	0	-1	-2	-3	-4	
22. Being your own boss	+4	+3	+2	+1	0	-1	-2	-3	-4	
23. Being away from crowds of people	+4	+3	+2	+1	0	-1	-2	-3	-4	
24. Getting exercise	+4	+3	+2	+1	0	-1	-2	-3	-4	
25. Experiencing new and different things	+4	+3	+2	+1	0	-1	-2	-3	-4	1:70
26. Relaxing physically	+4	+3	+2	+1	0	-1	-2	-3	-4	2:1
27. Thinking about your personal values	+4	+3	+2	+1	0	-1	-2	-3	-4	
28. Testing your abilities	+4	+3	+2	+1	0	-1	-2	-3	-4	
29. Experiencing tranquility	+4	+3	+2	+1	0	-1	-2	-3	-4	
30. Viewing the scenic beauty	+4	+3	+2	+1	0	-1	-2	-3	-4	2:5
31. Leading other people	+4	+3	+2	+1	0	-1	-2	-3	-4	
32. Bringing your family closer together	+4	+3	+2	+1	0	-1	-2	-3	-4	
33. Learning about the topography of the land	+4	+3	+2	+1	0	-1	-2	-3	-4	
34. Avoiding the unexpected	+4	+3	+2	+1	0	-1	-2	-3	-4	
35. Discovering something new	+4	+3	+2	+1	0	-1	-2	-3	-4	2:10
36. Showing others you can do it	+4	+3	+2	+1	0	-1	-2	-3	-4	
37. Being with friends	+4	+3	+2	+1	0	-1	-2	-3	-4	
38. Being on your own	+4	+3	+2	+1	0	-1	-2	-3	-4	
39. Chancing dangerous situations	+4	+3	+2	+1	0	-1	-2	-3	-4	
40. Experiencing excitement	+4	+3	+2	+1	0	-1	-2	-3	-4	2:15
41. Enjoying the sounds and smells of nature	+4	+3	+2	+1	0	-1	-2	-3	-4	
42. Releasing or reducing some built-up tensions	+4	+3	+2	+1	0	-1	-2	-3	-4	
43. Observing other people in the area	+4	+3	+2	+1	0	-1	-2	-3	-4	
44. Developing your skills and abilities	+4	+3	+2	+1	0	-1	-2	-3	-4	
45. Being alone	+4	+3	+2	+1	0	-1	-2	-3	-4	2:20
46. Thinking about who you are	+4	+3	+2	+1	0	-1	-2	-3	-4	
47. Being in control of things that happen	+4	+3	+2	+1	0	-1	-2	-3	-4	
48. Being away from noise back home	+4	+3	+2	+1	0	-1	-2	-3	-4	
49. Meeting other people in the area	+4	+3	+2	+1	0	-1	-2	-3	-4	
50. Keeping physically fit	+4	+3	+2	+1	0	-1	-2	-3	-4	2:25
51. Learning more about nature	+4	+3	+2	+1	0	-1	-2	-3	-4	
52. Giving your mind a rest	+4	+3	+2	+1	0	-1	-2	-3	-4	
53. Sharing what you have learned with others	+4	+3	+2	+1	0	-1	-2	-3	-4	
54. Experiencing solitude	+4	+3	+2	+1	0	-1	-2	-3	-4	
55. Experiencing feelings of exhilaration	+4	+3	+2	+1	0	-1	-2	-3	-4	2:30
56. Having more agreeable temperatures	+4	+3	+2	+1	0	-1	-2	-3	-4	
57. Being creative	+4	+3	+2	+1	0	-1	-2	-3	-4	2:32

V. In this question we want you to rate selected characteristics of the area where you recreated in the Sierra National Forest. Referring to your activity from Question IV, try to remember the specific area where you recreated in that activity the most. Then using the map on page 4 place a small X over a point which you feel is representative of that area (e.g. destination point for trail users). If you are unable to identify an area on the map please proceed to Question VI. 2:33-34

Now, check the spaces below which best describe the characteristics of the area you identified on the map. The seven spaces provided define a range between the labeled end-points. Check one position on each scale which best describes the area.

Large	____	____	____	____	____	____	____	Small
Had many facilities for visitor use	____	____	____	____	____	____	____	Had no facilities for visitor use
Offered many opportunities for outdoor challenges	____	____	____	____	____	____	____	Offered no opportunities for outdoor challenges
Sights and sounds of man were practically non-existant	____	____	____	____	____	____	____	Sights and sounds of man were quite evident
Had many other users	____	____	____	____	____	____	____	Had no other users
Offered many opportunities to use outdoor skills	____	____	____	____	____	____	____	Offered no opportunities to use outdoor skills
Provided good opportunity to realize a sense of remoteness or isolation from civilization	____	____	____	____	____	____	____	Provided no opportunity to realize a sense of remoteness or isolation from civilization
Demanded little physical effort to reach your destination	____	____	____	____	____	____	____	Demanded much physical effort to reach your destination
Management actions and controls were very apparent	____	____	____	____	____	____	____	Management actions and controls were not apparent
No motorized vehicles were present	____	____	____	____	____	____	____	Many motorized vehicles were present
Provided no opportunity to get far away from roads with motorized vehicles	____	____	____	____	____	____	____	Provided good opportunity to get far away from roads with motorized vehicles

2:35 2:40 2:45

VI. The Clean Air Act Amendments of 1977 require that investigations be conducted to determine if the quality of outdoor recreation experiences is affected by reductions in visibility. Would you please list the ways you feel reductions in visibility might affect your recreation experience in the Sierra National Forest, even if you experienced no reductions in visibility.

2:46-50

_____

_____

_____

VII. We know that users with different characteristics have different preferences. For that reason, we would appreciate your answering the following, more personal questions.

1. Your sex? ____Male ____Female 2:51

2. What is your present age? _____ 2:52-53

3. What is the highest year of formal schooling you have completed? (Please circle one.) 2:54-55

Elementary	1	2	3	4	5	6	7	8
High school or vocational school	9	10	11	12				
College or technical school	13	14	15	16				
Post graduate school	17	18	19	20	21	22		

4. Population of the community where you live: 2:56

____500,000 or more ____25,000-100,000 ____Below 5,000

____100,000-500,000 ____5,000-25,000 ____Rural

5. What is the zip code of your permanent address? ___ ___ ___ ___ ___ 2:57-61

THANK YOU FOR YOUR HELP!

J. Ross Arnold
Recreation Resources
Colorado State University
Fort Collins, Colorado 80523

CSU Project #31-1480-

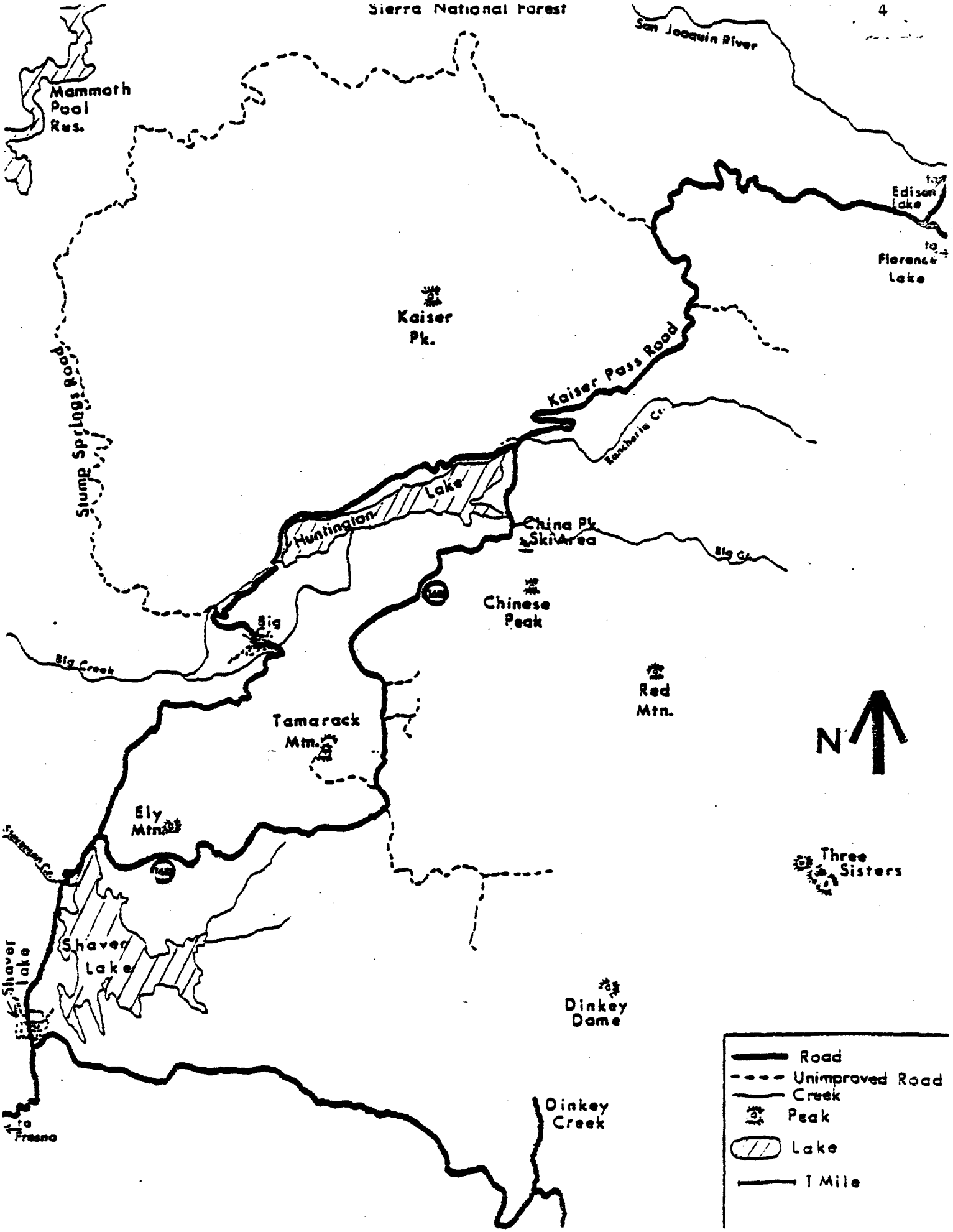

Mammoth Pool Res.
San Joaquin River
Edison Lake
to Florence Lake
Kaiser Pk.
Kaiser Pass Road
Stump Springs Road
Rancheria Cr.
Huntington Lake
China Pk. Ski Area
Big Cr.
Chinese Peak
Big
Big Creek
Red Mtn.
Tamarack Mtn.
N
Ely Mtn.
Three Sisters
Shaver Lake
Shaver Lake
Dinkey Dome
Dinkey Creek
to Fresno
Road
Unimproved Road
Creek
Peak
Lake
1 Mile

Figure A-3
(Winter Green)

This questionnaire has been designed to learn more about the recreation related preferences of the users of the Sierra National Forest.

I. Since October 1978, how many winter/spring visits have you made to the area where you or a member of your party was stopped for an interview last winter or spring.

One visit	2-3 visits	4-6 visits	7-15 visits	16-30 visits	Over 30 visits	1:1

II. Below are winter use issues of special concern to the managers of the Sierra National Forest. Please circle the number which best describes how much you favor (+) or oppose (-) each of the "Possible Management Actions" listed for that area. Circle only one number for each possible, but not necessarily planned, winter action.

Possible Winter Management Actions	FAVOR: Very Strongly	Strongly	Moderately	A Little	Neutral or Not Applicable	OPPOSE: A Little	Moderately	Strongly	Very Strongly	
1. Increase parking facilities in heavily used areas	+4	+3	+2	+1	0	-1	-2	-3	-4	1:2
2. Limit the number of people in heavily used areas	+4	+3	+2	+1	0	-1	-2	-3	-4	
3. Redistribute use to lightly used areas	+4	+3	+2	+1	0	-1	-2	-3	-4	
4. Develop a snow play area for tubing, etc.	+4	+3	+2	+1	0	-1	-2	-3	-4	1:5
5. Expand the present boundaries of China Peak Ski Area to provide more downhill skiing	+4	+3	+2	+1	0	-1	-2	-3	-4	
6. Encourage greater lift and trail capacity within the present boundaries of China Peak Ski Area	+4	+3	+2	+1	0	-1	-2	-3	-4	
7. Provide winter camping facilities along State Highway 168	+4	+3	+2	+1	0	-1	-2	-3	-4	
8. Provide winter camping facilities at Huntington Lake	+4	+3	+2	+1	0	-1	-2	-3	-4	
9. Other (please list) _____										1:10

The last 11 items are for cross-country skiers and snowmobilers only. All others please skip to question III.

10. Post map boards at trailheads to identify trail routes and mileages	+4	+3	+2	+1	0	-1	-2	-3	-4	
11. Rate trails according to the degree of difficulty of the terrain (i.e., skill required)	+4	+3	+2	+1	0	-1	-2	-3	-4	
12. Provide trail identification markers along the trail	+4	+3	+2	+1	0	-1	-2	-3	-4	
13. Expand trail system in heavily used areas	+4	+3	+2	+1	0	-1	-2	-3	-4	
14. Combine skiers and snowmobilers on the same trails	+4	+3	+2	+1	0	-1	-2	-3	-4	1:15
15. Provide separate trails for skiers and snowmobilers	+4	+3	+2	+1	0	-1	-2	-3	-4	
16. Develop winter trails maps	+4	+3	+2	+1	0	-1	-2	-3	-4	
17. Develop a hut system for backcountry users who wish to stay overnight	+4	+3	+2	+1	0	-1	-2	-3	-4	
18. Develop shelters for day use or emergency overnight stays	+4	+3	+2	+1	0	-1	-2	-3	-4	
19. Provide information on snow conditions in the area	+4	+3	+2	+1	0	-1	-2	-3	-4	1:20
20. Other (please list) _____										1:21

III. Please check all the activities you participated in when visiting the Sierra National Forest this past winter and spring. 1:22-43

1) ____Cross country skiing	9) ____Camping away from auto	17) ____4-wheel driving
2) ____Snowmobiling	10) ____Hiking/walking	18) ____Downhill skiing
3) ____Snowshoeing	11) ____Fishing	19) ____Getting away
4) ____Sledding tobogganning	12) ____Sightseeing/auto driving	20) ____Rock climbing
5) ____Ice skating	13) ____Photography	21) ____Exploring
6) ____Snow play	14) ____Nature study	22) ____Visiting friends/relatives
7) ____Picnicking	15) ____Hunting	23) ____Other (please list) _____ 1:44
8) ____Camping near auto	16) ____Wildlife viewing	_____ 1:45

IV. Using the activities you checked in Question III, select one activity you enjoyed the most or spent the most time doing during your visits to the Sierra National Forest. Please list the activity in the blank.

Your Activity: _____ 1:46-47

People engage in outdoor recreation for a variety of reasons. Imagine that you were to visit the same area next year (winter/spring, 1980) to participate in the activity you listed above. Then rate how important each item listed below would be to you as a reason for participating in that activity. Check one box for each reason.

Reasons	IMPORTANCE: Not Important	Of Little Importance	Somewhat Important	Moderately Important	Very Important	Extremely Important	
1. Taking it easy physically							
2. Being in a natural setting							
3. Gaining a sense of self-confidence							1:48
4. Doing something with your family							
5. Experiencing peace and calm							1:50
6. Viewing the scenery							
7. Getting away from the usual demands of life							
8. Being near considerate people							
9. Developing your knowledge of things there							
10. Having a change from your daily routine							1:55
11. Being close to nature							
12. Using your equipment							
13. Developing personal spiritual values							
14. Being with others who enjoy the same thing you do							
15. Feeling isolated							1:60
16. Feeling your independence							
17. Thinking about good times you've had in the past							
18. Becoming better at it							
19. Being near others who could help you if you need them							
20. Experiencing open space							1:65
21. Being with other members of your group							
22. Being your own boss							
23. Being away from crowds of people							
24. Getting exercise							
25. Experiencing new and different things							1:70
26. Relaxing physically							2:1
27. Thinking about your personal values							
28. Testing your abilities							
29. Experiencing tranquility							
30. Viewing the scenic beauty							2:5
31. Leading other people							
32. Bringing your family closer together							
33. Learning about the topography of the land							
34. Avoiding the unexpected							
35. Discovering something new							2:10
36. Showing others you can do it							
37. Being with friends							
38. Being on your own							
39. Chancing dangerous situations							
40. Experiencing excitement							2:15
41. Enjoying the sounds and smells of nature							
42. Releasing or reducing some built-up tensions							
43. Observing other people in the area							
44. Developing your skills and abilities							
45. Being alone							2:20
46. Thinking about who you are							
47. Being in control of things that happen							
48. Being away from noise back home							
49. Meeting other people in the area							
50. Keeping physically fit							2:25
51. Learning more about nature							
52. Giving your mind a rest							
53. Sharing what you have learned with others							
54. Experiencing solitude							
55. Experiencing feelings of exhilaration							2:30
56. Having more agreeable temperatures							
57. Being creative							2:32

V. a. A wide variety of recreation settings or environments can be provided by resource managers. Below are five lists of items which describe five settings in which you might engage in recreation activities. For the activity you listed in Section IV of this questionnaire, indicate whether you would like, dislike, or don't care about the condition described by each item in each list.

Setting Descriptions	Evaluation of Each Setting Factor For Your Activity			
	Like	Dislike	Unimportant	
Setting 1				
Remote, usually greater than 3 miles from roads.	☐	☐	☐	2:33
Unmodified natural environment over 5,000 acres.	☐	☐	☐	
Very little concentration or evidence of other users.	☐	☐	☐	2:35
Very low user density providing very few contacts with other users.	☐	☐	☐	
Managed without on-site regulation of users.	☐	☐	☐	
Free of most facilities.	☐	☐	☐	
Free of any resource uses which significantly disturb the natural environment.	☐	☐	☐	
Free of motorized use.	☐	☐	☐	2:40
Setting 2				
Moderately remote, usually greater than 1/2 mile from roads.	☐	☐	☐	
Predominately unmodified natural environment of over 2,500 acres.	☐	☐	☐	
Little, but some concentration or evidence of other users.	☐	☐	☐	
Low user density providing few, but some, contacts with other users.	☐	☐	☐	
Managed with minimum on-site regulation of users.	☐	☐	☐	2:45
A few facilities are provided for resource protection and safety of users.	☐	☐	☐	
Free of most resource uses which significantly disturb the natural environment.	☐	☐	☐	
Free of motorized use.	☐	☐	☐	
Setting 3				
Moderately remote, usually greater than 1/2 mile from roads.	☐	☐	☐	
Predominately unmodified natural environment of over 2,500 acres.	☐	☐	☐	2:50
Little, but some concentration or evidence of other users.	☐	☐	☐	
Low user density providing few, but some, contacts with other users.	☐	☐	☐	
Managed with minimum on-site regulation of users.	☐	☐	☐	
A few facilities are provided for resource protection and safety of users.	☐	☐	☐	
Free of most resource uses which significantly disturb the natural environment.	☐	☐	☐	2:55
Motorized use is allowed but generally restricted to 4-wheel drive vehicles and off-road motorcycles.	☐	☐	☐	
Setting 4				
Some of area remote, some along roads.	☐	☐	☐	
Environment appears to be generally natural.	☐	☐	☐	
Moderate concentration of users occurs and there are noticeable evidences of other users.	☐	☐	☐	
Contacts with other users are expected, but not constant.	☐	☐	☐	2:60
Managed with on-site regulation of users.	☐	☐	☐	
Rustic facilities available for resource protection and convenience and safety of users.	☐	☐	☐	
Resource uses like timbering and grazing might be evident.	☐	☐	☐	
Automobile use is allowed and common.	☐	☐	☐	
Setting 5				
Area is along roads.	☐	☐	☐	2:65
Environment is substantially modified from natural with some urban type developments.	☐	☐	☐	
Concentration of users is high and there are noticeable evidences of other users.	☐	☐	☐	
Contacts with other users are frequent.	☐	☐	☐	
Managed with on-site regulations of users.	☐	☐	☐	
Modern, high standard, and generally large facilities are provided for users.	☐	☐	☐	2:70
Resource uses allowed include timbering, grazing, water development and tourist and shopping areas.	☐	☐	☐	3:1
Automobile use is allowed and common.	☐	☐	☐	

b. Now please rate how favorable or unfavorable each of the 5 total recreation settings is for your activity in the Sierra National Forest. Give us your overall evaluation of each of the 5 settings.

Setting	Very Favorable	Moderately Favorable	Slightly Favorable	Neither Favorable or Unfavorable	Slightly Unfavorable	Moderately Unfavorable	Very Unfavorable	
1	☐	☐	☐	☐	☐	☐	☐	3:6
2	☐	☐	☐	☐	☐	☐	☐	
3	☐	☐	☐	☐	☐	☐	☐	
4	☐	☐	☐	☐	☐	☐	☐	
5	☐	☐	☐	☐	☐	☐	☐	3:10

VI. The Clean Air Act Amendments of 1977 require that investigations be conducted to determine if the quality of outdoor recreation experiences is affected by reductions in visibility. Would you please list the ways you feel reductions in visibility might affect your recreation experience in the Sierra National Forest, even if you experienced no reductions in visibility. 3:11-15

_____

_____

_____

VII. We know that users with different characteristics have different preferences. For that reason, we would appreciate your answering the following, more personal questions.

1. Your sex? ____Male ____Female 3:16

2. What is your present age? _____ 3:17-18

3. What is the highest year of formal schooling you have completed? (Please circle one.) 3:19-20

Elementary	1	2	3	4	5	6	7	8
High school or vocational school	9	10	11	12				
College or technical school	13	14	15	16				
Post graduate school	17	18	19	20	21	22		

4. Population of the community where you live: 3:21

____500,000 or more ____25,000-100,000 ____Below 5,000

____100,000-500,000 ____5,000-25,000 ____Rural

5. What is the zip code of your permanent address? ___ ___ ___ ___ ___ 3:22-26

THANK YOU FOR YOUR HELP!

J. Ross Arnold
Recreation Resources
Colorado State University
Fort Collins, Colorado 80523

CSU Project #31-1480-

Figure A-4
(Summer Buff)

This questionnaire has been designed to learn more about the recreation related preferences of the users of the Sierra National Forest and John Muir Wilderness Area.

I. Since June 1978, how many summer visits did you make to the Sierra National Forest? I:1

One visit	2-3 visits	4-6 visits	7-15 visits	16-30 visits	Over 30 visits

II. 1. Have you visited the John Muir Wilderness Area during the past five years? ___Yes ___No ___Don't know I:2

2. Have you visited the area that is now the Kaiser Wilderness Area during the past five years? I:3

___Yes ___No ___Don't know

III. Different users prefer different types of management on the Sierra National Forest. Please circle the number which best describes how much you favor (+) or oppose (-) each of the following "Possible Management Actions" for the Sierra National Forest. Circle only one number for each possible, but not necessarily planned, management action.

Possible Management Actions	FAVOR: Very Strongly	Strongly	Moderately	Slightly	Neutral	OPPOSE: Slightly	Moderately	Strongly	Very Strongly	
1. Provide more campgrounds	+4	+3	+2	+1	0	-1	-2	-3	-4	I:4
2. Provide showers and electricity in some campgrounds	+4	+3	+2	+1	0	-1	-2	-3	-4	I:5
3. Establish more distance between campground campsites	+4	+3	+2	+1	0	-1	-2	-3	-4	
4. Provide more picnic areas	+4	+3	+2	+1	0	-1	-2	-3	-4	
5. Retain private recreation residences that are currently leased on National Forest land	+4	+3	+2	+1	0	-1	-2	-3	-4	
6. Establish designated rustic (low level of development) camping sites in areas accessible by roads	+4	+3	+2	+1	0	-1	-2	-3	-4	
7. Provide limited facilities (toilets and tables) at dispersed camping sites along roads	+4	+3	+2	+1	0	-1	-2	-3	-4	I:10
8. Prohibit camping within 100 ft. of streams and lakes	+4	+3	+2	+1	0	-1	-2	-3	-4	
9. Continue to emphasize the "pack out what you pack in" policy in backcountry areas	+4	+3	+2	+1	0	-1	-2	-3	-4	
10. Construct more hiking trails in areas outside the John Muir and Kaiser Wildernesses	+4	+3	+2	+1	0	-1	-2	-3	-4	
11. Limit the number of people in heavily used areas on the forest, outside the John Muir and Kaiser Wildernesses	+4	+3	+2	+1	0	-1	-2	-3	-4	
12. Construct more trails in the John Muir Wilderness	+4	+3	+2	+1	0	-1	-2	-3	-4	I:15
13. Construct more trails in the Kaiser Wilderness	+4	+3	+2	+1	0	-1	-2	-3	-4	
14. Limit the number of people in the John Muir Wilderness at any one time for heavily used areas	+4	+3	+2	+1	0	-1	-2	-3	-4	
15. Limit the number of people in the Kaiser Wilderness at any one time for heavily used areas	+4	+3	+2	+1	0	-1	-2	-3	-4	
16. Maintain trailless areas in which all travel must be cross country	+4	+3	+2	+1	0	-1	-2	-3	-4	I:19

IV. How much do you agree or disagree with the following statements regarding your visits to the Sierra National Forest? Please place a check in the appropriate space.

Statements	AGREE: Strongly	Moderately	Slightly	Neither Agree Nor Disagree	DISAGREE: Slightly	Moderately	Strongly	
Commercial services (grocery stores, restaurants, etc.) were adequate to meet your needs	___	___	___	___	___	___	___	I:20
There were too many controls (regulations, signs, etc.) on your benavior by existing management actions	___	___	___	___	___	___	___	
Vandalism or willful damage to facilities or resources was evident and reduced the quality of your recreation experience	___	___	___	___	___	___	___	
Traffic on many of the roads was too heavy and reduced the quality of your recreation	___	___	___	___	___	___	___	

Please comment on any of the above statements and specify what changes in the current management of the Sierra National Forest would make your visit more enjoyable. I:24-25

_____

_____

_____

If you have any questions about this study, please contact:

J. Ross Arnold
Recreation Resources
Colorado State University
Fort Collins, CO 80523

V. Please check all the activities you participated in when visiting the Sierra National Forest this past summer (Summer, 1979). 1:28-38

1. ____Sailing
2. ____Canoeing
3. ____Boating
4. ____Swimming
5. ____Waterskiing
6. ____Camping near auto
7. ____Camping away from auto
8. ____Hiking
9. ____Fishing
10. ____Sightseeing/auto driving
11. ____Motorcycling
12. ____Picnicking
13. ____4-wheel driving
14. ____Other (please list) 1:39

_____ 1:40

VI. Using the activities you checked in Question V, select one activity you spent the most time doing during your visits to the Sierra National Forest. Please list the activity in the blank:

Your Activity: _____ 1:41-42

A recreation experience is affected by many factors, some are satisfying and some are not. Imagine that you were to visit the same area next year (summer 1980) to participate in the activity you listed above. Then rate how much each of the following types of experiences would either add to (+) or detract from (-) the level of satisfaction you would probably realize from that visit. Please circle only one number for each of the 58 items.

Experiences	EFFECT ON SATISFACTION: ADDS TO — Most Strongly	Strongly	Moderately	Slightly	DETRACTS FROM — Neutral	Slightly	Moderately	Strongly	Most Strongly	
1. Taking it easy physically	++	+3	+2	+1	0	-1	-2	-3	--	
2. Being in a natural setting	++	+3	+2	+1	0	-1	-2	-3	--	
3. Gaining a sense of self-confidence	++	+3	+2	+1	0	-1	-2	-3	--	1:13
4. Doing something with your family	++	+3	+2	+1	0	-1	-2	-3	--	
5. Experiencing peace and calm	++	+3	+2	+1	0	-1	-2	-3	--	1:16
6. Viewing the scenery	++	+3	+2	+1	0	-1	-2	-3	--	
7. Getting away from the usual demands of life	++	+3	+2	+1	0	-1	-2	-3	--	
8. Being near considerate people	++	+3	+2	+1	0	-1	-2	-3	--	
9. Developing your knowledge of things there	++	+3	+2	+1	0	-1	-2	-3	--	
10. Having a change from your daily routine	++	+3	+2	+1	0	-1	-2	-3	--	1:20
11. Being close to nature	++	+3	+2	+1	0	-1	-2	-3	--	
12. Using your equipment	++	+3	+2	+1	0	-1	-2	-3	--	
13. Developing personal spiritual values	++	+3	+2	+1	0	-1	-2	-3	--	
14. Being with others who enjoy the same thing you do	++	+3	+2	+1	0	-1	-2	-3	--	
15. Feeling isolated	++	+3	+2	+1	0	-1	-2	-3	--	1:25
16. Feeling your independence	++	+3	+2	+1	0	-1	-2	-3	--	
17. Thinking about good times you've had in the past	++	+3	+2	+1	0	-1	-2	-3	--	
18. Becoming better at it	++	+3	+2	+1	0	-1	-2	-3	--	
19. Being away from the family for a while	++	+3	+2	+1	0	-1	-2	-3	--	
20. Experiencing open space	++	+3	+2	+1	0	-1	-2	-3	--	1:30
21. Being with other members of your group	++	+3	+2	+1	0	-1	-2	-3	--	
22. Being your own boss	++	+3	+2	+1	0	-1	-2	-3	--	
23. Being away from crowds of people	++	+3	+2	+1	0	-1	-2	-3	--	
24. Getting exercise	++	+3	+2	+1	0	-1	-2	-3	--	
25. Experiencing new and different things	++	+3	+2	+1	0	-1	-2	-3	--	1:35
26. Relaxing physically	++	+3	+2	+1	0	-1	-2	-3	--	
27. Thinking about your personal values	++	+3	+2	+1	0	-1	-2	-3	--	
28. Testing your abilities	++	+3	+2	+1	0	-1	-2	-3	--	
29. Experiencing tranquility	++	+3	+2	+1	0	-1	-2	-3	--	
30. Viewing the scenic beauty	++	+3	+2	+1	0	-1	-2	-3	--	1:42
31. Leading other people	++	+3	+2	+1	0	-1	-2	-3	--	1:1
32. Bringing your family closer together	++	+3	+2	+1	0	-1	-2	-3	--	
33. Learning about the topography of the land	++	+3	+2	+1	0	-1	-2	-3	--	
34. Being creative	++	+3	+2	+1	0	-1	-2	-3	--	
35. Discovering something new	++	+3	+2	+1	0	-1	-2	-3	--	1:6
36. Showing others you can do it	++	+3	+2	+1	0	-1	-2	-3	--	
37. Being with friends	++	+3	+2	+1	0	-1	-2	-3	--	
38. Being on your own	++	+3	+2	+1	0	-1	-2	-3	--	
39. Chancing dangerous situations	++	+3	+2	+1	0	-1	-2	-3	--	
40. Experiencing excitement	++	+3	+2	+1	0	-1	-2	-3	--	1:10
41. Enjoying the sounds and smells of nature	++	+3	+2	+1	0	-1	-2	-3	--	
42. Releasing or reducing some built-up tensions	++	+3	+2	+1	0	-1	-2	-3	--	
43. Observing other people in the area	++	+3	+2	+1	0	-1	-2	-3	--	
44. Developing your skills and abilities	++	+3	+2	+1	0	-1	-2	-3	--	
45. Being alone	++	+3	+2	+1	0	-1	-2	-3	--	1:15
46. Thinking about who you are	++	+3	+2	+1	0	-1	-2	-3	--	
47. Being in control of things that happen	++	+3	+2	+1	0	-1	-2	-3	--	
48. Being away from noise back home	++	+3	+2	+1	0	-1	-2	-3	--	
49. Meeting other people in the area	++	+3	+2	+1	0	-1	-2	-3	--	
50. Keeping physically fit	++	+3	+2	+1	0	-1	-2	-3	--	1:20
51. Learning more about nature	++	+3	+2	+1	0	-1	-2	-3	--	
52. Giving your mind a rest	++	+3	+2	+1	0	-1	-2	-3	--	
53. Sharing what you have learned with others	++	+3	+2	+1	0	-1	-2	-3	--	
54. Experiencing solitude	++	+3	+2	+1	0	-1	-2	-3	--	
55. Experiencing feelings of exhilaration	++	+3	+2	+1	0	-1	-2	-3	--	1:25
56. Having more agreeable temperatures	++	+3	+2	+1	0	-1	-2	-3	--	
57. Avoiding the unexpected	++	+3	+2	+1	0	-1	-2	-3	--	
58. Being near others who could help you if you need them	++	+3	+2	+1	0	-1	-2	-3	--	1:30

VII. People participating in recreational activities prefer different environmental features. If you were participating in the activity you listed in Question VI, which feature from the following lists would you prefer the most? Please consider each list separately and check (✓) the most preferred feature. For example, for List I check which condition about motor vehicle use you prefer the most when participating in your activity.

List 1: (Amount of motorized use permitted)

Motor vehicles are permitted anywhere in the area	____	2:31
Motor vehicles are allowed on main roads and many designated backcountry trails and roads	____	
Motor vehicles are allowed on main roads and on a few designated backcountry trails and roads	____	
Motor vehicles are permitted only on main roads in the area	____	
Motor vehicles are not permitted	____	3:35

List 2: (Density of users on trails)

Extremely high number of contacts (over 20 parties/day) with other users on trails	____	
High number of contacts (11-20 parties/day) on trails	____	
Moderate number of contacts (5-10 parties/day) on trails	____	
Low number of contacts (2-4 parties/day) on trails	____	
Very low number of contacts (less than 2 parties/day) with other users on trails	____	2:40

List 3: (Density of users off trails; at picnicking, camping and other areas)

Extremely high number of contacts (over 20 parties/day) with other users off trails	____	
High number of contacts (11-20 parties/day) with users off trails	____	
Moderate number of contacts (5-10 parties/day) with users off trails	____	
Low number of contacts (2-4 parties/day) with users off trails	____	
Very low number of contacts (less than 2 parties/day) with other users off trails	____	2:45

List 4: (Evidence of past users)

Evidence of past users is just about everywhere	____	
Occasional evidence of past users is found	____	
Evidence of past users is hardly ever found	____	

List 5: (Remoteness)

All of the area is near developed roads	____	
Most of the area is near developed roads, but a little of it is remote	____	2:50
Most of the area is at least ½ mile from developed roads, but a little of it is near developed roads	____	
Nearly all the area is remote; there are a few developed roads which are far apart	____	

List 6: (Natural environment)

Environment is highly modified from natural by human developments	____	
Environment is moderately modified from natural by human developments	____	
Environment is predominantly unmodified from natural	____	2:55
Environment is unmodified by man except for foot trails	____	

List 7: (Control or regulation of users)

Managed with high degree of control or regulation of users	____	
Managed with moderate control or regulation of users	____	
Managed with little control or regulation of users	____	
Managed without any control or regulation of users	____	3:00

List 8: (Facilities)

Many modern, high standard and generally large facilities are provided for users	____	
Some, but not many, modern and high standard facilities are provided	____	
Several rustic facilities are provided but no modern, high standard ones	____	
Only a very few rustic facilities are provided	____	
Area has no developed facilities	____	3:05

List 9: (Other resource uses)

Resource uses (including timbering, grazing, mineral and water developments) are common	____	
Resource uses like timbering and grazing are evident but are not common	____	
Resource uses like timbering and grazing do exist but are not very evident	____	
There is no evidence of other resource uses	____	3:10

VIII. We ask this question to determine if people living and working under different conditions have different recreation preferences. Some words and phrases are used below to describe different types of work and neighborhood environments. The seven spaces provided define a range between the labeled end-points. Please check <u>one</u> position on each scale which best describes your neighborhood or work condition.

Neighborhood Conditions

(by neighborhood we mean your home or apartment and what you see or hear near it)

Friendly place to live	___	___	___	___	___	___	___	Unfriendly place to live
Too many people	___	___	___	___	___	___	___	Not too many people
Much open, green space	___	___	___	___	___	___	___	Little open, green space
Poorly kept up	___	___	___	___	___	___	___	Well kept up
Clean air	___	___	___	___	___	___	___	Polluted air
Too many houses	___	___	___	___	___	___	___	Not too many houses
Attractive buildings	___	___	___	___	___	___	___	Unattractive buildings
Noisy	___	___	___	___	___	___	___	Quiet

Work Conditions

Mentally exhausting	___	___	___	___	___	___	___	Not mentally exhausting
Physically exhausting	___	___	___	___	___	___	___	Not physically exhausting
Not usually boring	___	___	___	___	___	___	___	Usually boring
Low pressure job	___	___	___	___	___	___	___	High pressure job
Challenging	___	___	___	___	___	___	___	Not challenging
Work closely with others	___	___	___	___	___	___	___	Mostly work alone
Not interesting	___	___	___	___	___	___	___	Very interesting
Usually hectic	___	___	___	___	___	___	___	Not usually hectic

IX. 1. Please check (✓) whether or not you thought each of the following areas were socially overcrowded or ecologically overused.

CONDITION	John Muir Wilderness		Kaiser Wilderness		Non-Wilderness Backcountry Areas		Huntington Lake Campgrounds	
	Yes	No	Yes	No	Yes	No	Yes	No
Socially Overcrowded								
Ecologically Overused								

2. For each area, please give your estimate of the maximum number that should be allowed for each of the following conditions (people per party, pack and saddle animals per party, vehicles per party, and total days a party is allowed to camp in any one area). Place that number in the box under each area corresponding to each listed condition. If you don't think any maximum number should be set, write NONE in the appropriate box.

CONDITION	John Muir Wilderness	Kaiser Wilderness	Non-Wilderness Backcountry Areas	Huntington Lake Campgrounds
People/party				
Pack and saddle animals/party				
Vehicles/party	NOT ALLOWED	NOT ALLOWED		
Total days a party is allowed to camp in any one area				

X. We know that users with different characteristics and backgrounds have different preferences. For that reason, we would appreciate your answering the following, more personal questions.

1. Your sex? ____Male ____Female
2. What is your present age? _____
3. What is the highest year of formal schooling you have completed? (Please circle <u>only</u> one.)

Elementary	1	2	3	4	5	5	7	8
High school or vocational school	9	10	11	12				
College or technical school	13	14	15	16				
Post graduate school	17	18	19	20	21	22		

4. Which group best describes your cultural background?
   ____Indian ____Hispanic ____Oriental ____White ____Black ____Other
5. Please check <u>any</u> of the following if you think they reflect special recreation needs you have. Please describe those needs briefly.
   ____Handicapped ____Retired ____Other ____Describe: _____
6. Population of the community where you live:
   ____500,000 or more ____25,000-100,000 ____Below 5,000
   ____100,000-500,000 ____5,000-25,000 ____Rural
7. What is the zip code of your permanent address? ___ ___ ___ ___ ___

THANK YOU FOR YOUR HELP!

CSU Project #31-1480

Figure A-5
(Summer Yellow)

This questionnaire has been designed to learn more about the recreation related preferences of the users of the Sierra National Forest and John Muir Wilderness Area.

I. Since June 1978, how many summer visits did you make to the Sierra National Forest? I:1

One visit	2-3 visits	4-6 visits	7-15 visits	16-30 visits	Over 30 visits

II. 1. Have you visited the John Muir Wilderness Area during the past five years? ___Yes ___No ___Don't know I:2

2. Have you visited the area that is now the Kaiser Wilderness Area during the past five years?
___Yes ___No ___Don't know I:3

III. Different users prefer different types of management on the Sierra National Forest. Please circle the number which best describes how much you favor (+) or oppose (-) each of the following "Possible Management Actions" for the Sierra National Forest. Circle only one number for each possible, but not necessarily planned, management action.

Possible Management Actions	FAVOR					OPPOSE				
	Very Strongly	Strongly	Moderately	Slightly	Neutral	Slightly	Moderately	Strongly	Very Strongly	
1. Provide more campgrounds	+4	+3	+2	+1	0	-1	-2	-3	-4	I:4
2. Provide showers and electricity in some campgrounds	+4	+3	+2	+1	0	-1	-2	-3	-4	I:5
3. Establish more distance between campground campsites	+4	+3	+2	+1	0	-1	-2	-3	-4	
4. Provide more picnic areas	+4	+3	+2	+1	0	-1	-2	-3	-4	
5. Retain private recreation residences that are currently leased on National Forest land	+4	+3	+2	+1	0	-1	-2	-3	-4	
6. Establish designated rustic (low level of development) camping sites in areas accessible by roads	+4	+3	+2	+1	0	-1	-2	-3	-4	
7. Provide limited facilities (toilets and tables) at dispersed camping sites along roads	+4	+3	+2	+1	0	-1	-2	-3	-4	I:10
8. Prohibit camping within 100 ft. of streams and lakes	+4	+3	+2	+1	0	-1	-2	-3	-4	
9. Continue to emphasize the "pack out what you pack in" policy in backcountry areas	+4	+3	+2	+1	0	-1	-2	-3	-4	
10. Construct more hiking trails in areas outside the John Muir and Kaiser Wildernesses	+4	+3	+2	+1	0	-1	-2	-3	-4	
11. Limit the number of people in heavily used areas on the forest, outside the John Muir and Kaiser Wildernesses	+4	+3	+2	+1	0	-1	-2	-3	-4	
12. Construct more trails in the John Muir Wilderness	+4	+3	+2	+1	0	-1	-2	-3	-4	I:15
13. Construct more trails in the Kaiser Wilderness	+4	+3	+2	+1	0	-1	-2	-3	-4	
14. Limit the number of people in the John Muir Wilderness at any one time for heavily used areas	+4	+3	+2	+1	0	-1	-2	-3	-4	
15. Limit the number of people in the Kaiser Wilderness at any one time for heavily used areas	+4	+3	+2	+1	0	-1	-2	-3	-4	
16. Maintain trailless areas in which all travel must be cross country	+4	+3	+2	+1	0	-1	-2	-3	-4	I:19

IV. How much do you agree or disagree with the following statements regarding your visits to the Sierra National Forest? Please place a check in the appropriate space.

Statements	AGREE			Neither Agree Nor Disagree	DISAGREE			
	Strongly	Moderately	Slightly		Slightly	Moderately	Strongly	
Commercial services (grocery stores, restaurants, etc.) were adequate to meet your needs	___	___	___	___	___	___	___	I:20
There were too many controls (regulations, signs, etc.) on your benavior by existing management actions	___	___	___	___	___	___	___	
Vandalism or willful damage to facilities or resources was evident and reduced the quality of your recreation experience	___	___	___	___	___	___	___	
Traffic on many of the roads was too heavy and reduced the quality of your recreation	___	___	___	___	___	___	___	

Please comment on any of the above statements and specify what changes in the current management of the Sierra National Forest would make your visit more enjoyable. I:24-25

_____

_____

_____

If you have any questions about this study, please contact:

J. Ross Arnold
Recreation Resources
Colorado State University
Fort Collins, CO 80523

V. Please check all the activities you participated in when visiting the Sierra National Forest this past summer (Summer, 1979). 1:26-38

1. ____Sailing	6. ____Camping near auto	11. ____Motorcycling
2. ____Canoeing	7. ____Camping away from auto	12. ____Picnicking
3. ____Boating	8. ____Hiking	13. ____4-wheel driving
4. ____Swimming	9. ____Fishing	14. ____Other (please list) 1:39
5. ____Waterskiing	10. ____Sightseeing/auto driving	_____ 1:40

VI. Using the activities you checked in Question V, select one activity you spent the most time doing during your visits to the Sierra National Forest. Please list the activity in the blank.

Your Activity: _____ 1:41-42

People engage in outdoor recreation for a variety of reasons. Imagine that you were to visit the same area next year (summer 1980) to participate in the activity you listed above. Then rate how important each item listed below would be to you as a reason for participating in that activity. Please check (✓) only one box for each of the 58 reasons.

Reasons	IMPORTANCE: Not Important	Of A Little Importance	Somewhat Important	Moderately Important	Very Important	Extremely Important	
1. Taking it easy physically							
2. Being in a natural setting							
3. Gaining a sense of self-confidence							1:43
4. Doing something with your family							
5. Experiencing peace and calm							1:45
6. Viewing the scenery							
7. Getting away from the usual demands of life							
8. Being near considerate people							
9. Developing your knowledge of things there							
10. Having a change from your daily routine							1:50
11. Being close to nature							
12. Using your equipment							
13. Developing personal spiritual values							
14. Being with others who enjoy the same thing you do							
15. Feeling isolated							1:55
16. Feeling your independence							
17. Thinking about good times you've had in the past							
18. Becoming better at it							
19. Being away from the family for a while							
20. Experiencing open space							1:60
21. Being with other members of your group							
22. Being your own boss							
23. Being away from crowds of people							
24. Getting exercise							
25. Experiencing new and different things							1:65
26. Relaxing physically							
27. Thinking about your personal values							
28. Testing your abilities							
29. Experiencing tranquility							
30. Viewing the scenic beauty							1:70
31. Leading other people							2:1
32. Bringing your family closer together							
33. Learning about the topography of the land							
34. Being creative							
35. Discovering something new							2:5
36. Showing others you can do it							
37. Being with friends							
38. Being on your own							
39. Chancing dangerous situations							
40. Experiencing excitement							2:10
41. Enjoying the sounds and smells of nature							
42. Releasing or reducing some built-up tensions							
43. Observing other people in the area							
44. Developing your skills and abilities							
45. Being alone							2:15
46. Thinking about who you are							
47. Being in control of things that happen							
48. Being away from noise back home							
49. Meeting other people in the area							
50. Keeping physically fit							2:20
51. Learning more about nature							
52. Giving your mind a rest							
53. Sharing what you have learned with others							
54. Experiencing solitude							
55. Experiencing feelings of exhilaration							2:25
56. Having more agreeable temperatures							
57. Avoiding the unexpected							
58. Being near others who could help you if you need them							2:28

VII. People participating in recreational activities prefer different environmental features. If you were participating in the activity you listed in Question VI, which feature from the following lists would you prefer the most? Please consider each list separately and check (✓) the most preferred feature. For example, for List I check which condition about motor vehicle use you prefer the most when participating in your activity.

List 1: (Amount of motorized use permitted)

Motor vehicles are permitted anywhere in the area	____	2:31
Motor vehicles are allowed on main roads and many designated backcountry trails and roads	____	
Motor vehicles are allowed on main roads and on a few designated backcountry trails and roads	____	
Motor vehicles are permitted only on main roads in the area	____	
Motor vehicles are not permitted	____	2:35

List 2: (Density of users on trails)

Extremely high number of contacts (over 20 parties/day) with other users on trails	____	
High number of contacts (11-20 parties/day) on trails	____	
Moderate number of contacts (5-10 parties/day) on trails	____	
Low number of contacts (2-4 parties/day) on trails	____	
Very low number of contacts (less than 2 parties/day) with other users on trails	____	2:40

List 3: (Density of users off trails; at picnicking, camping and other areas)

Extremely high number of contacts (over 20 parties/day) with other users off trails	____	
High number of contacts (11-20 parties/day) with users off trails	____	
Moderate number of contacts (5-10 parties/day) with users off trails	____	
Low number of contacts (2-4 parties/day) with users off trails	____	
Very low number of contacts (less than 2 parties/day) with other users off trails	____	2:45

List 4: (Evidence of past users)

Evidence of past users is just about everywhere	____	
Occasional evidence of past users is found	____	
Evidence of past users is hardly ever found	____	

List 5: (Remoteness)

All of the area is near developed roads	____	
Most of the area is near developed roads, but a little of it is remote	____	2:50
Most of the area is at least ½ mile from developed roads, but a little of it is near developed roads	____	
Nearly all the area is remote; there are a few developed roads which are far apart	____	

List 6: (Natural environment)

Environment is highly modified from natural by human developments	____	
Environment is moderately modified from natural by human developments	____	
Environment is predominantly unmodified from natural	____	2:55
Environment is unmodified by man except for foot trails	____	

List 7: (Control or regulation of users)

Managed with high degree of control or regulation of users	____	
Managed with moderate control or regulation of users	____	
Managed with little control or regulation of users	____	
Managed without any control or regulation of users	____	2:60

List 8: (Facilities)

Many modern, high standard and generally large facilities are provided for users	____	
Some, but not many, modern and high standard facilities are provided	____	
Several rustic facilities are provided but no modern, high standard ones	____	
Only a very few rustic facilities are provided	____	
Area has no developed facilities	____	2:65

List 9: (Other resource uses)

Resource uses (including timbering, grazing, mineral and water developments) are common	____	
Resource uses like timbering and grazing are evident but are not common	____	
Resource uses like timbering and grazing do exist but are not very evident	____	
There is no evidence of other resource uses	____	2:69

VIII. We ask this question to determine if people living and working under different conditions have different recreation preferences. Some words and phrases are used below to describe different types of work and neighborhood environments. The seven spaces provided define a range between the labeled end-points. Please check one position on each scale which best describes your neighborhood or work condition.

Neighborhood Conditions

(by neighborhood we mean your home or apartment and what you see or hear near it)

Friendly place to live	___	___	___	___	___	___	___	Unfriendly place to live
Too many people	___	___	___	___	___	___	___	Not too many people
Much open, green space	___	___	___	___	___	___	___	Little open, green space
Poorly kept up	___	___	___	___	___	___	___	Well kept up
Clean air	___	___	___	___	___	___	___	Polluted air
Too many houses	___	___	___	___	___	___	___	Not too many houses
Attractive buildings	___	___	___	___	___	___	___	Unattractive buildings
Noisy	___	___	___	___	___	___	___	Quiet

Work Conditions

Mentally exhausting	___	___	___	___	___	___	___	Not mentally exhausting
Physically exhausting	___	___	___	___	___	___	___	Not physically exhausting
Not usually boring	___	___	___	___	___	___	___	Usually boring
Low pressure job	___	___	___	___	___	___	___	High pressure job
Challenging	___	___	___	___	___	___	___	Not challenging
Work closely with others	___	___	___	___	___	___	___	Mostly work alone
Not interesting	___	___	___	___	___	___	___	Very interesting
Usually hectic	___	___	___	___	___	___	___	Not usually hectic

IX. 1. Please check (✓) whether or not you thought each of the following areas were socially overcrowded or ecologically overused.

CONDITION	John Muir Wilderness		Kaiser Wilderness		Non-Wilderness Backcountry Areas		Huntington Lake Campgrounds		
	Yes	No	Yes	No	Yes	No	Yes	No	
Socially Overcrowded									3:17-20
Ecologically Overused									3:21-24

2. For each area, please give your estimate of the maximum number that should be allowed for each of the following conditions (people per party, pack and saddle animals per party, vehicles per party, and total days a party is allowed to camp in any one area). Place that number in the box under each area corresponding to each listed condition. If you don't think any maximum number should be set, write NONE in the appropriate box.

CONDITION	John Muir Wilderness	Kaiser Wilderness	Non-Wilderness Backcountry Areas	Huntington Lake Campgrounds	
People/party					3:25-28
Pack and saddle animals/party					3:29-32
Vehicles/party	NOT ALLOWED	NOT ALLOWED			3:33-36
Total days a party is allowed to camp in any one area					3:37-40

X. We know that users with different characteristics and backgrounds have different preferences. For that reason, we would appreciate your answering the following, more personal questions.

1. Your sex? ____Male ____Female 3:41
2. What is your present age? _____ 3:42-43
3. What is the highest year of formal schooling you have completed? (Please circle only one.) 3:44-45

Elementary	1	2	3	4	5	6	7	8
High school or vocational school	9	10	11	12				
College or technical school	13	14	15	16				
Post graduate school	17	18	19	20	21	22		

4. Which group best describes your cultural background? 3:46
   ____Indian ____Hispanic ____Oriental ____White ____Black ____Other
5. Please check any of the following if you think they reflect special recreation needs you have. Please describe those needs briefly. 3:47
   ____Handicapped ____Retired ____Other ____Describe: _____
6. Population of the community where you live: 3:48
   ____500,000 or more ____25,000-100,000 ____Below 5,000
   ____100,000-500,000 ____5,000-25,000 ____Rural
7. What is the zip code of your permanent address? ___ ___ ___ ___ ___ 3:49-53

THANK YOU FOR YOUR HELP! CSU Project #31-1480

Table A-1. Recreation experience preference domains, scales (designated by numbers), and items (designated by lower case letters) used in the Sierra National Forest cross-validation user preference study (Winter/Summer, 1979).

Domain A: Achievement

1. Reinforcing Self Image
   a. Gaining a sense of self-confidence.
2. Social Recognition
   a. Showing others you can do it.
3. Skill Development
   a. Becoming better at it.
   b. Developing your skills and abilities.
4. Competence Testing
   a. Testing your abilities.
5. Seeking Stimulation
   a. Experiencing excitement.
   b. Experiencing feelings of exhilaration.

Domain B: Leadership/Autonomy

1. Independence
   a. Feeling your independence.
   b. Being on your own.
2. Autonomy
   a. Being your own boss.
3. Control Power
   a. Being in control of things that happen.
4. Teaching-Sharing Skills
   a. Sharing what you have learned with others.
5. Leading Others
   a. Leading other people.

Domain C: Risk Taking

1. Risk Taking
   a. Chancing dangerous situations.
2. Risk Moderation
   a. Being near others who could help you if you need them.
3. Risk Avoidance
   a. Avoiding the unexpected.

Domain D: Equipment

1. Equipment
    a. Using your equipment.

Domain E: Family Togetherness

1. Family Togetherness
    a. Doing something with your family.
    b. Bringing your family closer together.

Domain F: Being with People

1. Being with Friends
    a. Being with other members of your group.
    b. Being with friends.
2. Being with Similar People
    a. Being with others who enjoy the same thing you do.

Domain G: Meeting-Observing New People

1. Meeting New People
    a. Meeting other people in the area.
2. Observing Other People
    a. Observing other people in the area.

Domain H: General Learning

1. General Learning
    a. Developing your knowledge of things there.
2. Exploration
    a. Experiencing new and different things.
    b. Discovering something new.
3. Geography of Area
    a. Learning about the topography of the land.
4. Learn about Nature
    a. Learning more about nature.

Domain I: Relationships with Nature

1. Scenery
    a. Viewing the scenery.
    b. Viewing the scenic beauty.

2. General Nature Experience
    a. Being close to nature.
    b. Enjoying the sounds and smells of nature.

Domain J: Reflect on Personal Values
1. Spiritual
    a. Developing personal spiritual values.
2. Introspection
    a. Thinking about your personal values.
    b. Thinking about who you are.

Domain K: Creativity
1. Creativity
    a. Being creative.

Domain L: Nostalgia
1. Nostalgia
    a. Thinking about good times you've had in the past.

Domain M: Exercise/Physical Fitness
1. Exercise/Physical Fitness
    a. Getting exercise.
    b. Keeping physically fit.

Domain N: Physical Rest
1. Physical Rest
    a. Relaxing physically.

Domain O: Escape Personal-Social Pressure
1. Tension Release
    a. Releasing or reducing some built-up tensions.
2. Slow Down Mentally
    a. Giving you mind a rest.
3. Escape Role Overloads
    a. Getting away from the usual demands of life.
4. Escape Daily Routine
    a. Having a change from your daily routine.

Domain P: Escape Physical Pressure

1. Tranquility
   a. Experiencing tranquility.
   b. Experiencing solitude.
   c. Experiencing peace and calm.
2. Seek Open Space
   a. Experiencing open space.
3. Privacy
   a. Feeling isolated.
   b. Being alone.
4. Escape Crowds
   a. Being away from crowds of people.
5. Escape Physical Stressors
   a. Being away from noise back home.

Domain Q: Security

1. Social Security
   a. Being near considerate people.

Domain R: Escaping Family

1. Escaping Family
   *a. Being away from the family for awhile.

Domain S: Temperature

1. Temperature
   a. Having more agreeable temperatures.

---

*This item appears only on the summer questionnaire.

APPENDIX B

WINTER RECREATION EXPERIENCE PREFERENCES

Table B-1. Recreation experience preference domain (D), scale (S), and item (I) means for those respondents sampled in the Sierra National Forest using the "adds to - detracts from satisfaction" response format (Winter, 1979).

Recreation Experience Preferences Domain Scale Item	Total Sample Mean[a] D	S	I	S.D.[b]	N	Alpha[c]	Inter-Item Correlation[d] r	$\bar{r}$
1. Achievement	2.1			1.5	447	.82		.41
Reinforcing Self Image		2.3		1.5	437			
Gaining a sense of self-confidence.			2.3	1.5	437			
Social Recognition		.6		1.8	439			
Showing others you can do it.			.6	1.8	439			
Skill Development		2.6		1.4	446	.81	.67	
Becoming better at it.			2.7	1.4	443			
Developing your skills and abilities.			2.5	1.4	441			
Competence Testing		2.5		1.3	443			
Testing your abilities.			2.5	1.3	443			
Seeking Stimulation		2.6		1.4	443	.63	.46	
Experiencing excitement.			2.5	1.5	440			
Experiencing feelings of exhilaration.			2.7	1.4	440			
2. Leadership/Autonomy	1.7			1.6	446	.74		.32
Independence		2.1		1.5	443	.64	.48	
Feeling your independence.			2.3	1.5	443			
Being on your own.			1.9	1.6	435			
Autonomy		1.8		1.7	438			
Being your own boss.			1.8	1.7	438			
Control Power		1.9		1.5	440			
Being in control of things that happen.			1.9	1.5	440			
Teaching-Sharing Skills		1.8		1.6	442			
Sharing what you have learned with others.			1.8	1.6	442			
Leading Others		.6		1.7	443			
Leading other people.			.6	1.7	443			
3. Risk Taking	.8			1.9	445	.17		.14
Risk Taking		.3		2.3	439			
Chancing dangerous situations.			.3	2.3	439			
Risk Moderation		1.6		1.6	442			
Being near others who could help you if you need them.			1.6	1.6	442			
Risk Avoidance		.6		1.8	438			
Avoiding the unexpected.			.6	1.8	438			
4. Equipment	2.3			1.5	440			
Equipment		2.3		1.5	440			
Using your equipment.			2.3	1.5	440			
5. Family Togetherness	2.4			1.6	447	.88	.76	
Family Togetherness		2.4		1.6	447	.88	.76	
Doing something with your family.			2.6	1.6	443			
Bringing your family closer together.			2.2	1.7	445			
6. Being with People	2.6			1.4	447	.81		.59
Being with Friends		2.4		1.5	447	.78	.65	
Being with other members of your group.			2.2	1.6	441			
Being with friends.			2.6	1.3	446			
Being with Similar People		2.8		1.4	442			
Being with others who enjoy the same thing you do.			2.8	1.4	442			
7. Meeting-Observing New People	.9			2.1	444	.81	.68	
Meeting New People		1.3		2.0	443			
Meeting other people in the area.			1.3	2.0	443			
Observing Other People		.5		2.2	441			
Observing other people in the area.			.5	2.2	441			
8. General Learning	2.3			1.4	448	.85		.53
General Learning		2.4		1.4	441			
Developing your knowledge of things there.			2.4	1.4	441			
Exploration		2.6		1.3	446	.81	.64	
Experiencing new and different things.			2.8	1.3	440			
Discovering something new.			2.6	1.3	440			
Geography of Area		1.7		1.6	443			
Learning about the topography of the land.			1.7	1.6	443			
Learn about Nature		2.4		1.3	444			
Learning more about nature.			2.4	1.3	444			
9. Relationships with Nature	3.2			1.0	449	.85		.60
Scenery		3.3		.9	447	.77	.65	
Viewing the scenery.			3.4	.8	445			
Viewing the scenic beauty.			3.3	1.0	446			
General Nature Experience		3.2		1.1	448	.75	.60	
Being close to nature.			3.1	1.1	445			
Enjoying the sounds and smells of nature.			3.2	1.1	445			

Table B-1. Continued.

Recreation Experience Preferences Domain Scale Item	Mean[a] D	Mean[a] S	Mean[a] I	S.D.[b]	N	Alpha[a]	Inter-Item Correlation[d] r	Inter-Item Correlation[d] $\bar{r}$
10. Reflect on Personal Values	1.7			1.6	446	.76		.50
Spiritual		1.9		1.7	443			
Developing personal spiritual values.			1.9	1.7	443			
Introspection		1.5		1.6	444	.76	.61	
Thinking about your personal values.			1.7	1.6	443			
Thinking about who you are.			1.3	1.6	441			
11. Creativity	1.7			1.5	441			
Creativity		1.7		1.5	441			
Being creative.			1.7	1.5	441			
12. Nostalgia	2.0			1.6	443			
Nostalgia		2.0		1.6	443			
Thinking about good times you've had in the past.			2.0	1.6	443			
13. Exercise/Physical Fitness	2.9			1.2	444	.78	.65	
Exercise/Physical Fitness		2.9		1.2	444	.78	.65	
Getting exercise.			3.1	1.1	439			
Keeping physically fit.			2.8	1.3	443			
14. Physical Rest	1.8			2.0	445			
Physical Rest		1.8		2.0	445			
Relaxing physically.			1.8	2.0	445			
15. Escape Personal-Social Pressure	2.9			1.2	448	.72		.40
Tension Release		2.7		1.3	441			
Releasing or reducing some built-up tensions.			2.7	1.3	441			
Slow Down Mentally		2.5		1.5	444			
Giving your mind a rest.			2.5	1.5	444			
Escape Role Overloads		3.3		1.0	443			
Getting away from the usual demands of life.			3.3	1.0	443			
Escape Daily Routine		3.2		1.0	442			
Having a change from your daily routine.			3.2	1.0	442			
16. Escape Physical Pressure	2.5			1.5	449	.82		.38
Tranquility		2.6		1.4	447	.73		.48
Experiencing tranquility.			2.6	1.4	444			
Experiencing solitude.			2.0	1.6	444			
Experiencing peace and calm.			3.1	1.3	442			
Seek Open Space		3.0		1.2	441			
Experiencing open space.			3.0	1.2	441			
Privacy		1.4		2.0	442	.59	.43	
Feeling isolated.			1.4	2.1	439			
Being alone.			1.4	1.8	439			
Escape Crowds		2.8		1.5	442			
Being away from crowds of people.			2.8	1.5	442			
Escape Physical Stressors		2.7		1.5	441			
Being away from noise back home.			2.7	1.5	441			
17. Security	2.2			1.9	441			
Social Security		2.2		1.9	441			
Being near considerate people.			2.2	1.9	441			
18. Temperature	1.2			1.7	444			
Temperature		1.2		1.7	444			
Having more agreeable temperatures.			1.2	1.7	444			

[a]Means are based on responses to a nine-point response format ranging from +4 (very strongly adds) to -4 (very strongly detracts).

[b]Standard deviations for multiple-item scales are computed by averaging the standard deviations of the items within that scale. Standard deviations for multiple scale domains are computed by averaging the standard deviations of the scales within that domain.

[c]Alpha reliability for scales and domains consisting of more than one item using the Cronbach alpha computation for internal consistency.

[d]For scales and domains consisting of only two items, "r," or the correlation between the two items, is reported here. The average inter-item correlation, "r," is reported for scales and domains consisting of three or more items.

Table B-2. Recreation experience preference domain (D), scale (S), and item (I) means for those respondents sampled in the Sierra National Forest using the "importance rating" response format (Winter, 1979).

Recreation Experience Preferences Domain Scale Item	Total Sample Mean[a] D	S	I	S.D.[b]	N	Alpha[c]	Inter-Item Correlation[d] r	$\bar{r}$
1. Achievement	3.5			1.5	156	.87		.48
Reinforcing Self Image		3.6		1.7	154			
Gaining a sense of self-confidence.			3.6	1.7	154			
Social Recognition		2.2		1.3	155			
Showing others you can do it.			2.2	1.3	155			
Skill Development		4.0		1.5	156	.87	.76	
Becoming better at it.			4.1	1.5	154			
Developing your skills and abilities.			4.0	1.5	155			
Competence Testing		4.0		1.5	156			
Testing your abilities.			4.0	1.5	156			
Seeking Stimulation		3.9		1.5	156	.73	.55	
Experiencing excitement.			3.7	1.6	154			
Experiencing feelings of exhilaration.			4.1	1.5	153			
2. Leadership/Autonomy	3.2			1.1	156	.73		.30
Independence		3.5		1.6	156	.72	.57	
Feeling your independence.			3.7	1.7	155			
Being on your own.			3.4	1.5	156			
Autonomy		3.2		1.7	156			
Being your own boss.			3.2	1.7	156			
Control Power		3.6		1.5	156			
Being in control of things that happen.			3.6	1.5	156			
Teaching-Sharing Skills		3.4		1.4	154			
Sharing what you have learned with others.			3.4	1.4	154			
Leading Others		2.1		1.1	156			
Leading other people.			2.1	1.1	156			
3. Risk Taking	2.7			1.5	155	.45		.20
Risk Taking		2.3		1.5	153			
Chancing dangerous situations.			2.3	1.5	153			
Risk Moderation		3.2		1.5	155			
Being near others who could help you if you need them.			3.2	1.5	155			
Risk Avoidance		2.6		1.6	152			
Avoiding the unexpected.			2.6	1.6	152			
4. Equipment	3.6			1.7	155			
Equipment		3.6		1.7	155			
Using your equipment.			3.6	1.7	155			
5. Family Togetherness	4.2			1.6	156	.90	.79	
Family Togetherness		4.2		1.6	156	.90	.79	
Doing something with your family.			4.4	1.5	153			
Bringing your family closer together.			4.1	1.7	156			
6. Being with People	4.2			1.4	157	.83		.63
Being with Friends		4.0		1.4	157	.79	.65	
Being with other members of your group.			3.7	1.5	156			
Being with friends.			4.3	1.4	156			
Being with Similar People		4.4		1.5	156			
Being with others who enjoy the same thing you do.			4.4	1.5	156			
7. Meeting-Observing New People	2.7			1.4	156	.69	.53	
Meeting New People		3.1		1.4	155			
Meeting other people in the area.			3.1	1.4	155			
Observing Other People		2.4		1.5	156			
Observing other people in the area.			2.4	1.5	156			
8. General Learning	3.9			1.3	157	.85		.52
General Learning		4.0		1.3	155			
Developing your knowledge of things there.			4.0	1.3	155			
Exploration		4.2		1.3	157	.72	.57	
Experiencing new and different things.			4.4	1.2	156			
Discovering something new.			4.0	1.4	155			
Geography of Area		3.2		1.4	155			
Learning about the topography of the land.			3.2	1.4	155			
Learn About Nature		4.0		1.4	156			
Learning more about nature.			4.0	1.4	156			
9. Relationships with Nature	4.9			1.1	157	.86		.62
Scenery		5.0		1.1	157	.83	.72	
Viewing the scenery.			5.1	1.0	156			
Viewing the scenic beauty.			5.0	1.1	155			
General Nature Experience		4.9		1.2	157	.79	.65	
Being close to nature.			4.8	1.2	156			
Enjoying the sounds and smells of nature.			4.9	1.1	157			

Table B-2. Continued.

Recreation Experience Preferences Domain Scale Item	Total Sample Mean[a] D	S	I	S.D.[b]	N	Alpha[c]	Inter-Item Correlation[c] r	$\bar{r}$
10. Reflect on Personal Values	3.3			1.7	156	.82		.62
Spiritual		3.5		1.7	155			
Developing personal spiritual values.			3.5	1.7	155			
Introspection		3.2		1.6	156	.78	.63	
Thinking about your personal values.			3.4	1.6	156			
Thinking about who you are.			2.9	1.6	155			
11. Creativity	3.3			1.5	154			
Creativity		3.3		1.5	154			
Being creative.			3.3	1.5	154			
12. Nostalgia	3.4			1.6	155			
Nostalgia		3.4		1.6	155			
Thinking about good times you've had in the past.			3.4	1.6	155			
13. Exercise/Physical Fitness	4.7			1.3	156	.80	.68	
Exercise/Physical Fitness		4.7		1.3	156	.80	.68	
Getting exercise.			4.8	1.2	156			
Keeping physically fit.			4.6	1.3	156			
14. Physical Rest	3.7			1.7	156			
Physical Rest		3.7		1.7	156			
Relaxing physically.			3.7	1.7	156			
15. Escape Personal-Social Pressure	4.7			1.3	157	.82		.54
Tension Release		4.6		1.2	154			
Releasing or reducing some built-up tensions.			4.6	1.2	154			
Slow Down Mentally		4.4		1.4	157			
Giving your mind a rest.			4.4	1.4	157			
Escape Role Overloads		5.1		1.2	156			
Getting away from the usual demands of life.			5.1	1.2	156			
Escape Daily Routine		4.9		1.2	155			
Having a change from your daily routine.			4.9	1.2	155			
16. Escape Physical Pressure	4.1			1.5	157	.88		.49
Tranquility		4.3		1.5	156	.82		.59
Experiencing tranquility.			4.2	1.4	155			
Experiencing solitude.			3.6	1.6	154			
Experiencing peace and calm.			5.0	1.3	155			
Seek Open Space		4.6		1.3	157			
Experiencing open space.			4.6	1.3	157			
Privacy		3.0		1.6	156	.75	.62	
Feeling isolated.			3.0	1.7	155			
Being alone.			2.9	1.6	153			
Escape Crowds		4.4		1.5	156			
Being away from crowds of people.			4.4	1.5	156			
Escape Physical Stressors		4.4		1.5	157			
Being away from noise back home.			4.4	1.5	157			
17. Security	4.0			1.6	154			
Social Security		4.0		1.6	154			
Being near considerate people.			4.0	1.6	154			
18. Temperature	2.8			1.6	154			
Temperature		2.8		1.6	154			
Having more agreeable temperatures.			2.8	1.6	154			

[a]Means are based on responses to a six-point response format ranging from 6 (extremly important) to 1 (not important).

[b]Standard deviations for multiple-scales are computed by averaging the standard deviations of the items within that scale. Standard deviations for multiple scale domains are computed by averaging the standard deviations of the scales within that domain.

[c]Alpha reliability for scales and domains consisting of more than one item using the Cronbach alpha computation for internal consistency.

[d]For scales and domains consisting of only two items, "r," or the correlation between the two items, is reported here. The average inter-item correlation, "r," is reported for scales and domains consisting of three or more items.

Table B-3. Recreation experience preference domain (D), scale (S), and item (I) means for those respondents sampled in the Sierra National Forest using the "adds to - detracts from satisfaction" response format, grouped by their most important activity (Winter, 1979).

Recreation Experience Preferences Domain Scale Item	Fishing Mean[a] D	S	I	S.D.[b]	N	Downhill Skiing Mean[a] D	S	I	S.D.[b]	N	Cross-Country Skiing Mean[a] D	S	I	S.D.[b]	N
1. Achievement	1.5			1.6	74	2.6			1.4	134	2.2			1.3	86
Reinforcing Self Image		1.7		1.6	70		2.5		1.5	134		2.6		1.5	86
Gaining a sense of self-confidence.			1.7	1.6	70			2.5	1.5	134			2.6	1.5	86
Social Recognition		-.1		2.0	68		1.3		1.7	134		.2		1.6	86
Showing others you can do it.			-.1	2.0	68			1.3	1.7	134			.2	1.6	86
Skill Development		1.9		1.5	74		3.1		1.3	134		2.8		1.2	86
Becoming better at it.			2.1	1.5	73			3.2	1.1	133			2.9	1.2	86
Developing your skills and abilities.			1.6	1.5	72			3.1	1.1	132			2.7	1.2	86
Competence Testing		2.0		1.4	71		3.1		1.0	134		2.7		1.2	86
Testing your abilities.			2.0	1.4	71			3.1	1.0	134			2.7	1.2	86
Seeking Stimulation		1.9		1.5	73		2.9		1.7	133		2.8		1.2	86
Experiencing excitement.			1.9	1.5	72			2.9	1.4	132			2.5	1.3	86
Experiencing feelings of exhilaration.			1.9	1.6	73			2.9	1.2	133			3.1	1.1	86
2. Leadership/Autonomy	1.5			1.6	74	1.7			1.6	134	1.7			1.5	86
Independence		1.9		1.5	73		2.1		1.6	134		2.3		1.5	86
Feeling your independence.			2.1	1.5	73			2.3	1.4	134			2.4	1.6	86
Being on your own.			1.6	1.6	70			1.9	1.7	131			2.1	1.5	86
Autonomy		1.7		1.7	71		1.7		1.8	134		1.8		1.5	83
Being your own boss.			1.7	1.7	71			1.7	1.8	134			1.8	1.5	83
Control Power		1.7		1.5	72		2.0		1.7	133		2.0		1.3	86
Being in control of things that happen.			1.7	1.5	72			2.0	1.7	133			2.0	1.3	86
Teaching-Sharing Skills		1.6		1.7	73		2.1		1.5	132		2.0		1.4	86
Sharing what you have learned with others.			1.6	1.7	73			2.1	1.5	132			2.0	1.4	86
Leading Others		.4		1.9	72		.7		1.6	134		.7		1.7	86
Leading other people.			.4	1.9	72			.7	1.6	134			.7	1.7	86
3. Risk Taking	.5			1.8	73	1.1			1.9	134	.6			1.9	86
Risk Taking		-.3		2.1	72		.7		2.5	133		.2		2.2	86
Chancing dangerous situations.			-.3	2.1	72			.7	2.5	133			.2	2.2	86
Risk Moderation		1.1		1.6	73		2.0		1.5	133		1.4		1.6	86
Being near others who could help you if you need them.			1.1	1.6	73			2.0	1.5	133			1.4	1.6	86
Risk Avoidance		.7		1.6	70		.5		1.8	133		.2		1.8	85
Avoiding the unexpected.			.7	1.6	70			.5	1.8	133			.2	1.8	85
4. Equipment	2.2			1.3	71	2.5			1.4	133	2.0			1.4	85
Equipment		2.2		1.3	71		2.5		1.4	133		2.0		1.4	85
Using your equipment.			2.2	1.3	71			2.5	1.4	133			2.0	1.4	85
5. Family Togetherness	2.6			1.4	75	2.3			1.7	134	2.0			1.6	86
Family Togetherness		2.6		1.4	75		2.3		1.7	134		2.0		1.6	86
Doing something with your family.			2.7	1.3	75			2.5	1.7	134			2.3	1.6	86
Bringing your family closer together.			2.4	1.4	73			2.1	1.8	134			1.8	1.6	86

Table B-3. Continued.

Recreation Experience Preferences Domain Scale Item	Fishing Mean[a] D	Fishing Mean[a] S	Fishing Mean[a] I	Fishing S.D.[b]	Fishing N	Downhill Skiing Mean[a] D	Downhill Skiing Mean[a] S	Downhill Skiing Mean[a] I	Downhill Skiing S.D.[b]	Downhill Skiing N	Cross-Country Skiing Mean[a] D	Cross-Country Skiing Mean[a] S	Cross-Country Skiing Mean[a] I	Cross-Country Skiing S.D.[b]	Cross-Country Skiing N
6. Being with People	2.3			1.7	75	2.9			1.2	134	2.6			1.2	86
Being with Friends		2.1		1.8	75		2.8		1.2	134		2.4		1.2	86
Being with other members of your group.			2.1	1.9	72			2.5	1.3	133			2.1	1.3	85
Being with friends.			2.2	1.8	75			3.0	1.0	134			2.6	1.0	86
Being with Similar People		2.5		1.5	73		2.9		1.3	133		2.8		1.1	86
Being with others who enjoy the same thing you do.			2.5	1.5	73			2.9	1.3	133			2.8	1.1	86
7. Meeting-Observing New People	.5			2.1	73	1.9			1.7	133	0.0			2.1	86
Meeting New People		.9		2.1	73		2.2		1.5	133		.3		2.2	86
Meeting other people in the area.			.9	2.1	73			2.2	1.5	133			.3	2.2	86
Observing Other People		.1		2.1	72		1.6		1.9	133		-.4		2.1	86
Observing other people in the area.			.1	2.1	72			1.6	1.9	133			-.4	2.1	86
8. General Learning	2.0			1.5	75	2.0			1.5	134	2.7			1.1	86
General Learning		2.1		1.5	73		2.0		1.6	132		2.9		.1	86
Developing your knowledge of things there.			2.1	1.5	73			2.0	1.6	132			2.9	1.0	86
Exploration		2.0		1.6	74		2.6		1.4	134		3.0		1.0	86
Experiencing new and different things.			2.1	1.6	70			2.7	1.4	134			3.2	1.0	85
Discovering something new.			1.9	1.6	71			2.5	1.4	134			2.8	1.1	84
Geography of Area		1.5		1.6	73		1.2		1.7	133		2.1		1.3	86
Learning about the topography of the land.			1.5	1.6	73			1.2	1.7	133			2.1	1.3	86
Learn about Nature		2.2		1.4	73		2.1		1.4	133		2.9		1.0	86
Learning more about nature.			2.2	1.4	73			2.1	1.4	133			2.9	1.0	86
9. Relationships with Nature	3.1			1.0	76	3.0			1.1	134	3.4			.8	86
Scenery		3.2		1.0	74		3.1		1.0	134		3.5		.7	86
Viewing the scenery.			3.2	.9	74			3.2	.9	134			3.5	.6	86
Viewing the scenic beauty.			3.1	1.1	74			3.1	1.2	133			3.5	.7	86
General Nature Experience		3.1		1.1	76		2.9		1.2	134		3.3		.1	86
Being close to nature.			3.0	1.1	75			2.9	1.2	133			3.4	1.0	85
Enjoying the sounds and smells of nature.			3.1	1.1	76			3.0	1.2	133			3.2	.9	86
10. Reflect on Personal Values	1.4			1.5	74	1.5			1.8	134	2.0			1.4	86
Spiritual		1.5		1.5	74		1.7		1.8	133		2.3		1.4	86
Developing personal spiritual values.			1.5	1.5	74			1.7	1.8	133			2.3	1.4	86
Introspection		1.3		1.5	72		1.3		1.7	134		1.7		1.5	86
Thinking about your personal values.			1.6	1.5	72			1.4	1.7	134			1.9	1.4	85
Thinking about who you are.			1.0	1.5	72			1.2	1.7	133			1.5	1.6	86
11. Creativity	1.3			1.4	72	1.7			1.5	132	1.7			1.5	85
Creativity		1.3		1.4	72		1.7		1.5	132		1.7		1.5	85
Being creative.			1.3	1.4	72			1.7	1.5	132			1.7	1.5	85
12. Nostalgia	2.1			1.5	72	2.0			1.6	134	1.7			1.7	86
Nostalgia		2.1		1.5	72		2.0		1.6	134		1.7		1.7	86
Thinking about good times you've had in the past.			2.1	1.5	72			2.0	1.6	134			1.7	1.7	86

Table B-3. Continued.

Recreation Experience Preferences Domain Scale Item	Fishing Mean[a] D	S	I	S.D.[b]	N	Downhill Skiing Mean[a] D	S	I	S.D.[b]	N	Cross-Country Skiing Mean[a] D	S	I	S.D.[b]	N
13. Exercise/Physical Fitness	2.4			1.4	73	3.2			1.1	134	3.3			.9	86
Exercise/Physical Fitness		2.4		1.4	73		3.2		1.1	134		3.3		.9	86
Getting exercise.			2.5	1.4	70			3.3	1.0	134			3.4	.8	85
Keeping physically fit.			2.3	1.3	73			3.1	1.2	133			3.2	1.0	86
14. Physical Rest	2.4			1.9	74	1.4			2.1	133	1.2			2.0	86
Physical Rest		2.4		1.9	74		1.4		2.1	133		1.2		2.0	86
Relaxing physically.			2.4	1.9	74			1.4	2.1	133			1.2	2.0	86
15. Escape Personal-Social Pressure	2.8			1.2	75	3.0			1.1	134	2.7			1.2	86
Tension Release		2.4		1.5	73		2.9		1.2	133		2.6		1.3	86
Releasing or reducing some built-up tensions.			2.4	1.5	73			2.9	1.2	133			2.6	1.3	86
Slow Down Mentally		2.5		1.3	74		2.5		1.4	132		2.3		1.6	86
Giving your mind a rest.			2.5	1.3	74			2.5	1.4	132			2.3	1.6	86
Escape Role Overloads		3.3		1.0	73		3.3		1.0	134		3.1		1.1	85
Getting away from the usual demands of life.			3.3	1.0	73			3.3	1.0	134			3.1	1.1	85
Escape Daily Routine		3.1		1.0	73		3.2		1.0	134		3.1		1.1	84
Having a change from your daily routine.			3.1	1.0	73			3.2	1.0	134			3.1	1.1	84
16. Escape Physical Pressure	2.6			1.4	76	2.0			1.6	134	2.8			1.2	86
Tranquility		2.7		1.2	75		2.1		1.6	134		3.0		1.2	86
Experiencing tranquility.			2.6	1.3	74			2.1	1.6	134			3.1	1.0	86
Experiencing solitude.			2.2	1.4	74			1.5	1.7	133			2.5	1.5	86
Experiencing peace and calm.			3.2	.9	73			2.7	1.6	133			3.3	1.0	86
Seek Open Space		2.8		1.3	71		2.8		1.3	133		3.3		1.0	86
Experiencing open space.			2.8	1.3	71			2.8	1.3	133			3.3	1.0	86
Privacy		1.5		1.9	72		.7		1.9	134		1.8		1.7	86
Feeling isolated.			1.3	2.0	71			.5	2.0	133			2.1	1.8	86
Being alone.			1.7	1.7	72			1.0	1.8	132			1.5	1.7	86
Escape Crowds		3.0		1.4	73		2.0		1.8	133		3.4		.9	85
Being away from crowds of people.			3.0	1.4	73			2.0	1.8	133			3.4	.9	85
Escape Physical Stressors		2.7		1.3	75		2.4		1.5	131		2.8		1.3	86
Being away from noise back home.			2.7	1.3	75			2.4	1.5	131			2.8	1.3	86
17. Security	1.9			1.8	73	2.5			1.5	134	2.2			2.1	84
Social Security		1.9		1.8	73		2.5		1.5	134		2.2		2.1	84
Being near considerate people.			1.9	1.8	73			2.5	1.5	134			2.2	2.1	84
18. Temperature	1.3			1.6	75	1.2			1.8	132	.7			1.6	85
Temperature		1.3		1.6	75		1.2		1.8	132		.7		1.6	85
Having more agreeable temperatures.			1.3	1.6	75			1.2	1.8	132			.7	1.6	85

[a]Means are based on responses to a nine-point response format ranging from +4 (very strongly adds) to -4 (very strongly detracts).

[b]Standard deviations for multiple-item scales are computed by averaging the standard deviations of the items within that scale. Standard deviations for multiple scale domains are computed by averaging the standard deviations of the scales within that domain.

Table B-4. Recreation experience preference domain (D), Scale (S), and Item (I) means for those respondents sampled in the Sierra National Forest using the "importance rating" response format, grouped by their most important activity (Winter, 1979).

Recreation Experience Preferences Domain Scale Item	Fishing Mean[a] D	S	I	S.D.[b]	N	Downhill Skiing Mean[a] D	S	I	S.D.[b]	N	Cross-Country Skiing Mean[a] D	S	I	S.D.[b]	N
1. Achievement	3.0			1.5	27	4.0			1.4	49	3.8			1.3	25
Reinforcing Self Image		2.7		1.6	27		3.7		1.6	49		3.9		1.6	24
Gaining a sense of self-confidence.			2.7	1.6	27			3.7	1.6	49			3.9	1.6	24
Social Recognition		2.0		1.3	27		2.5		1.4	49		2.0		1.2	25
Showing others you can do it.			2.0	1.3	27			2.5	1.4	49			2.0	1.2	25
Skill Development		3.3		1.6	27		4.8		1.2	49		4.4		1.1	25
Becoming better at it.			3.5	1.6	27			4.9	1.1	48			4.5	1.0	25
Developing your skills and abilities.			3.1	1.5	27			4.7	1.2	48			4.4	1.3	25
Competence Testing		3.3		1.5	27		4.6		1.3	49		4.2		1.1	25
Testing your abilities.			3.3	1.5	27			4.6	1.3	49			4.2	1.1	25
Seeking Stimulation		3.4		1.6	27		4.5		1.3	49		4.2		1.3	25
Experiencing excitement.			3.1	1.6	27			4.5	1.4	48			3.9	1.3	25
Experiencing feelings of exhilaration.			3.8	1.5	26			4.5	1.2	49			4.7	1.3	23
2. Leadership/Autonomy	3.1			1.5	27	3.3			1.5	49	3.3			1.4	25
Independence		3.1		1.5	27		3.5		1.7	49		3.8		1.4	25
Feeling your independence.			3.0	1.8	27			3.6	1.8	49			4.2	1.4	25
Being on your own.			3.1	1.3	27			3.4	1.7	49			3.4	1.4	25
Autonomy		3.4		1.8	27		3.4		1.7	49		3.0		1.5	25
Being your own boss.			3.4	1.8	27			3.4	1.7	49			3.0	1.5	25
Control Power		3.6		1.7	27		3.8		1.5	49		3.9		1.4	25
Being in control of things that happen.			3.6	1.7	27			3.8	1.5	49			3.9	1.4	25
Teaching-Sharing Skills		3.3		1.2	26		3.6		1.6	49		3.5		1.1	24
Sharing what you have learned with others.			3.2	1.2	26			3.6	1.6	49			3.5	1.1	24
Leading Others		2.0		.9	27		2.1		1.2	49		2.5		1.4	25
Leading other people.			2.0	.9	27			2.1	1.2	49			2.5	1.4	25
3. Risk Taking	2.7			1.6	27	3.0			1.6	49	2.5			1.4	24
Risk Taking		2.1		1.6	27		2.9		1.6	47		1.8		1.1	24
Chancing dangerous situations.			2.1	1.6	27			2.9	1.6	47			1.8	1.1	24
Risk Moderation		3.3		1.5	27		3.3		1.6	49		3.4		1.5	24
Being near others who could help you if you need them.			3.3	1.5	27			3.3	1.6	49			3.4	1.5	24
Risk Avoidance		2.7		1.8	27		2.8		1.5	48		2.3		1.7	23
Avoiding the unexpected.			2.7	1.8	27			2.8	1.5	48			2.3	1.7	23
4. Equipment	3.6			1.4	27	4.1			1.7	49	3.6			1.6	25
Equipment		3.6		1.4	27		4.1		1.7	49		3.6		1.6	25
Using your equipment.			3.6	1.4	27			4.1	1.7	49			3.6	1.6	25
5. Family Togetherness	4.5			1.6	27	4.0			1.6	49	4.3			1.5	25
Family Togetherness		4.5		1.6	27		4.0		1.6	49		4.3		1.5	25
Doing something with your family.			4.6	1.5	27			4.1	1.5	49			4.7	1.5	24
Bringing your family closer together.			4.4	1.6	27			3.9	1.7	49			4.1	1.6	25

Table B-4. Continued.

Recreation Experience Preferences Domain Scale Item	Fishing Mean[a] D	Fishing Mean[a] S	Fishing Mean[a] I	Fishing S.D.[b]	Fishing N	Downhill Skiing Mean[a] D	Downhill Skiing Mean[a] S	Downhill Skiing Mean[a] I	Downhill Skiing S.D.[b]	Downhill Skiing N	Cross-Country Skiing Mean[a] D	Cross-Country Skiing Mean[a] S	Cross-Country Skiing Mean[a] I	Cross-Country Skiing S.D.[b]	Cross-Country Skiing N
6. Being with People	4.2			1.6	27	4.5			1.4	49	4.5			1.1	25
Being with Friends		4.1		1.5	27		4.3		1.4	49		4.3		1.2	25
Being with other members of your group.			4.0	1.5	27			4.0	1.5	49			4.0	1.3	25
Being with friends.			4.2	1.5	27			4.6	1.3	49			4.5	1.2	25
Being with Similar People		4.2		1.6	27		4.7		1.4	49		4.7		1.0	25
Being with others who enjoy the same thing you do.			4.2	1.6	27			4.7	1.4	49			4.7	1.0	25
7. Meeting-Observing New People	2.8			1.5	27	3.2			1.4	49	2.5			1.3	25
Meeting New People		3.0		1.3	27		3.6		1.4	49		2.9		1.3	24
Meeting other people in the area.			3.0	1.3	27			3.6	1.4	49			2.9	1.3	24
Observing Other People		2.6		1.6	27		2.9		1.5	49		2.1		1.3	25
Observing other people in the area.			2.6	1.6	27			2.9	1.5	49			2.1	1.3	25
8. General Learning	3.6			1.4	27	3.4			1.4	49	4.1			1.2	25
General Learning		3.7		1.3	27		3.7		1.3	48		4.0		1.1	25
Developing your knowledge of things there.			3.7	1.3	27			3.7	1.3	48			4.0	1.1	25
Exploration		3.9		1.3	27		4.0		1.3	49		4.5		.9	25
Experiencing new and different things.			4.0	1.3	27			4.2	1.2	49			4.9	.8	25
Discovering something new.			3.8	1.4	27			3.8	1.4	48			4.1	1.1	24
Geography of Area		2.9		1.4	27		2.7		1.4	49		3.4		1.4	25
Learning about the topography of the land.			2.9	1.4	27			2.7	1.4	49			3.4	1.4	25
Learn about Nature		3.9		1.4	27		3.4		1.4	49		4.4		1.2	25
Learning more about nature.			3.9	1.4	27			3.4	1.4	49			4.4	1.2	25
9. Relationships with Nature	4.9			1.0	27	4.5			1.4	49	5.5			.7	25
Scenery		4.9		.9	27		4.6		1.3	49		5.6		.6	25
Viewing the scenery.			4.9	.9	27			4.6	1.3	49			5.6	.6	25
Viewing the scenic beauty.			4.9	.9	27			4.5	1.3	48			5.5	.6	24
General Nature Experience		4.8		1.0	27		4.4		1.5	49		5.5		.7	25
Being close to nature.			4.7	1.0	27			4.3	1.6	49			5.6	.7	25
Enjoying the sounds and smells of nature.			4.9	1.0	27			4.4	1.4	49			5.4	.8	25
10. Reflect on Personal Values	3.1			1.7	27	3.1			1.7	49	3.8			1.7	25
Spiritual		3.3		1.7	27		3.4		1.7	48		4.1		1.7	25
Developing personal spiritual values.			3.3	1.7	27			3.4	1.7	48			4.1	1.7	25
Introspection		3.0		1.6	27		2.9		1.6	49		3.5		1.6	25
Thinking about your personal values.			3.4	1.5	27			3.1	1.6	49			3.9	1.5	25
Thinking about who you are.			2.6	1.8	27			2.6	1.5	48			3.2	1.7	25
11. Creativity	3.0			1.6	26	3.5			1.6	49	3.2			1.4	24
Creativity		3.0		1.6	26		3.5		1.6	49		3.2		1.4	24
Being creative.			3.0	1.6	26			3.5	1.6	49			3.2	1.4	24
12. Nostalgia	3.2			1.5	27	3.4			1.7	49	3.3			1.5	24
Nostalgia		3.2		1.5	27		3.4		1.7	49		3.3		1.5	24
Thinking about good times you've had in the past.			3.2	1.5	27			3.4	1.7	49			3.3	1.5	24

Table B-4. Continued.

Recreation Experience Preferences Domain Scale Item	Fishing Mean[a] D	S	I			Downhill Skiing Mean[a] D	S	I			Cross-Country Skiing Mean[a] D	S	I		
13. Exercise/Physical Fitness	4.1			1.1	27	5.0			1.1	49	5.1			1.2	25
Exercise/Physical Fitness		4.1		1.1	27		5.0		1.1	49		5.1		1.2	25
Getting exercise.			4.2	1.1	27			5.0	1.1	49			5.2	1.2	25
Keeping physically fit.			4.1	1.2	27			4.9	1.2	49			5.0	1.3	25
14. Physical Rest	4.3			1.7	27	3.4			1.8	49	3.4			1.6	25
Physical Rest		4.3		1.7	27		3.4		1.8	49		3.4		1.6	25
Relaxing physically.			4.3	1.7	27			3.4	1.8	49			3.4	1.6	25
15. Escape Personal-Social Pressure	4.6			1.4	27	4.7			1.3	49	4.9			1.1	25
Tension Release		4.5		1.4	27		4.7		1.2	48		4.8		1.1	24
Releasing or reducing some built-up tensions.			4.5	1.4	27			4.7	1.2	48			4.8	1.1	24
Slow Down Mentally		4.4		1.4	27		4.3		1.5	49		4.4		1.6	25
Give your mind a rest.			4.4	1.4	27			4.3	1.5	49			4.4	1.6	25
Escape Role Overloads		4.8		1.4	26		5.0		1.2	49		5.4		1.0	25
Getting away from the usual demands of life.			4.8	1.4	26			5.0	1.2	49			5.4	1.0	25
Escape Daily Routine		4.7		1.3	27		4.9		1.2	49		5.1		.9	25
Having a change from your daily routine.			4.7	1.3	27			4.9	1.2	49			5.1	.9	25
16. Escape Physical Pressure	4.0			1.5	27	3.6			1.6	49	4.8			1.0	25
Tranquility		4.4		1.4	27		3.7		1.6	49		4.8		1.1	25
Experiencing tranquility.			4.3	1.4	27			3.8	1.6	48			4.8	1.1	25
Experiencing solitude.			3.7	1.7	26			3.1	1.7	49			4.1	1.3	24
Experiencing peace and calm.			5.2	1.1	27			4.3	1.6	48			5.5	.8	25
Seek Open Space		4.1		1.3	27		4.3		1.5	49		5.4		.7	25
Experiencing open space.			4.1	1.3	27			4.3	1.5	49			5.4	.7	25
Privacy		2.8		1.7	27		2.5		1.6	49		3.2		1.4	25
Feeling isolated.			2.8	1.7	27			2.5	1.6	48			3.2	1.4	25
Being alone.			2.8	1.6	27			2.5	1.5	48			3.2	1.4	24
Escape Crowds		4.5		1.4	27		3.6		1.7	48		5.2		.9	25
Being away from crowds of people.			4.5	1.4	27			3.6	1.7	48			5.2	.9	25
Escape Physical Stressors		4.1		1.6	27		3.9		1.6	49		5.2		1.1	25
Being away from noise back home.			4.1	1.6	27			3.9	1.6	49			5.2	1.1	25
17. Security	4.3			1.6	26	4.2			1.4	49	3.6			1.6	25
Social Security		4.3		1.6	26		4.2		1.4	49		3.6		1.6	25
Being near considerate people.			4.3	1.6	26			4.2	1.4	49			3.6	1.6	25
18. Temperature	3.3			1.6	26	2.6			1.6	49	2.4			1.4	24
Temperature		3.3		1.6	26		2.6		1.6	49		2.4		1.4	24
Having more agreeable temperatures.			3.3	1.6	26			2.6	1.6	49			2.4	1.4	24

[a]Means are based on responses to a six-point response format ranging from 6 (extremely important) to 1 (not important).

[b]Standard deviations for multiple-item scales are computed by averaging the standard deviations of the items within that scale. Standard deviations for multiple scale domains are computed by averaging the standard deviations of the scales within that domain.

APPENDIX C

WINTER MANAGEMENT ACTION PREFERENCES

Table C-1. Management item means and standard deviations for respondents sampled in the Sierra National Forest grouped by their most important activity (Winter, 1979).

Possible Management Actions	Snowmobiling (N=15) [a]		Downhill Skiing (N=178) [a]		Cross-Country Skiing (N=110) [a]		Fishing (N=99) [a]		Camping Near Auto (N=18) [a]		Hiking/ Camping Away From Auto (N=49) [a]		Sightseeing/ Getting Away (N=40) [a]	
	Mean [b]	S.D. [c]	Mean [b]	S.D. [c]	Mean [b]	S.D. [c]	Mean [b]	S.D. [c]	Mean [b]	S.D. [c]	Mean [b]	S.D. [c]	Mean [b]	S.D. [c]
Develop a snow play area for tubing, etc.	2.7	1.4	2.1	1.9	1.5	2.0	1.8	2.2	2.4	2.3	2.1	1.8	2.7	1.5
Expand the present boundaries of China Peak Ski Area to provide more downhill skiing.	1.9	1.7	3.4	1.2	0.3	2.5	1.0	2.4	1.4	2.7	1.4	2.4	1.4	2.2
Provide winter camping facilities at Huntington Lake.	2.5	1.5	1.5	2.2	1.6	2.2	1.2	2.2	2.5	2.1	1.9	1.8	1.6	1.9
Encourage greater lift and trail capacity within the present boundaries of China Peak Ski Area.	2.1	1.7	2.7	2.2	0.8	2.1	1.1	2.1	1.3	2.5	1.4	2.2	1.3	2.0
Increase parking facilities in heavily used areas.	2.9	1.3	1.7	2.2	0.9	2.2	1.6	2.2	1.4	2.6	-0.2	2.4	1.7	1.8
Provide winter camping facilities along State Highway 168.	1.8	2.2	1.2	2.2	1.2	2.2	1.3	2.2	2.6	2.0	1.5	2.0	1.3	2.2
Redistribute use to lightly used areas.	2.4	1.1	0.9	2.2	1.3	2.4	1.1	2.4	0.9	2.5	1.5	2.2	1.6	2.0
Limit the number of people in heavily used areas.	-0.5	3.0	0.5	2.4	1.2	2.4	0.8	2.5	-1.7	2.2	1.3	2.2	-0.3	2.6

[a] Calculations for each management item are based on at least the number of respondents indicated by N.

[b] Means are based on responses to a nine-point response format ranging from +4 (very strongly favor) to -4 (very strongly oppose).

[c] Standard deviation (S.D.) is a measure of variation in the responses around the mean score.

Table C-2. Means and standard deviations, by activity groups, for management items directed only to cross-country skiers and snowmobilers sampled in the Sierra National Forest (Winter, 1979).[a]

Possible Management Actions	Snowmobilers			Cross-Country Skiers		
	Mean[b]	S.D.[c]	N	Mean[b]	S.D.[c]	N
Provide separate trails for skiers and snowmobilers.	2.2	2.2	27	3.5	1.1	181
Post map boards at trailheads to identify trail routes and mileages.	3.1	1.4	27	3.1	1.3	182
Provide trail identification markers along the trail.	3.0	1.4	27	3.1	1.4	181
Develop winter trail maps.	2.7	1.5	26	3.0	1.5	181
Rate trails according to degree of difficulty of the terrain (i.e., skill required).	2.5	1.7	27	2.8	1.6	183
Provide information on snow conditions in the area.	2.9	1.7	27	2.7	1.6	175
Expand trail system in heavily used areas.	2.6	2.0	27	2.4	2.0	180
Develop shelters for day use or emergency overnight stays.	1.4	2.5	27	2.1	2.2	180
Develop a hut system for backcountry users who wish to stay overnight.	0.8	2.6	27	2.2	2.3	183
Combine skiers and snowmobilers on the same trails.	-0.8	2.8	27	-3.4	1.5	182

[a]This analysis includes all respondents who indicated participation in either cross-country skiing or snowmobiling (but not both), regardless of their most important activity.

[b]Means are based on responses to a nine-point response format ranging from +4 (very strongly favor) to -4 (very strongly oppose).

[c]Standard deviation (S.D.) is a measure of variation in the responses around the mean score.

Table C-3. Management item means and standard deviations for respondents sampled in the Sierra National Forest grouped by the zone in which they engaged in their most important activity (Winter, 1979).

Possible Management Actions	Zone[a] 3 (N=25)[b]		4 (N=55)[b]		5a Downhill Skiers (N=101)[b]		5b Other Users (N=46)[b]		6 (N=16)[b]		10 (N=21)[b]	
	Mean[c]	S.D.[d]	Mean[c]	S.D.[d]	Mean[c]	S.D.[d]	Mean[c]	S.D.[d]	Mean[c]	S.D.[d]	Mean[c]	S.D.[d]
Develop a snow play area for tubing, etc.	1.7	2.2	2.1	2.1	2.0	2.0	1.8	1.9	2.6	1.5	1.3	2.4
Expand the present boundaries of China Peak Ski Area to provide more downhill skiing.	1.5	2.3	0.6	2.4	3.4	1.3	0.4	2.4	0.5	2.3	1.5	2.5
Provide winter camping facilities at Huntington Lake.	2.2	1.7	1.6	2.4	1.5	2.0	1.4	2.3	2.1	1.1	2.0	2.0
Encourage greater lift and trail capacity within the present boundaries of China Peak Ski Area.	1.2	2.2	0.8	2.3	2.6	2.3	0.5	2.2	0.7	1.8	1.6	2.2
Increase parking facilities in heavily used areas.	1.1	2.7	1.4	2.3	1.6	2.2	1.1	2.2	0.3	2.7	1.2	2.3
Provide winter camping facilities along State Highway 168.	1.6	1.9	1.6	2.4	1.3	2.1	0.7	2.4	1.6	1.6	1.5	2.4
Redistribute use to lightly used areas.	1.3	2.2	2.0	1.9	0.9	2.2	1.1	2.1	0.8	2.0	0.1	2.8
Limit the number of people in heavily used areas.	0.5	2.6	1.0	2.5	0.5	2.4	0.9	2.7	0.3	2.4	0.5	2.7

[a] Zones having fewer than 15 respondents are not included in this analysis.

[b] Calculations for each management item are based on at least the number of respondents indicated by N.

[c] Means are based on responses to a nine-point response format ranging from +4 (very strongly favor) to -4 (very strongly oppose).

[d] Standard deviation (S.D.) is a measure of variation in the responses around the mean score.

APPENDIX D

SUMMER RECREATION EXPERIENCE PREFERENCES

Table D-1. Recreation experience preference domain (D), scale (S), and item (I) means for those respondents sampled in Sierra National Forest using the "adds to-detracts from satisfaction" response format (Summer, 1979).

Recreation Experience Preferences Domain Scale Item	Total Sample Mean[a] D	S	I	S.D.[b]	N	Alpha[c]	Inter-Item Correlation[d] r	$\bar{r}$
1. Achievement	1.7			1.6	498	.85		.43
Reinforcing Self Image		2.0		1.5	488			
Gaining a sense of self confidence.			2.0	1.5	488			
Social Recognition		.7		1.7	497			
Showing others you can do it.			.7	1.7	497			
Skill Development		2.0		1.5	497	.80	.66	
Becoming better at it.			2.1	1.5	491			
Developing your skills and abilities.			1.8	1.6	493			
Competence Testing		2.0		1.5	490			
Testing your abilities.			2.0	1.5	490			
Seeking Stimulation		2.0		1.6	496	.63	.46	
Experiencing excitement.			1.8	1.8	493			
Experiencing feelings of exhilaration.			2.3	1.4	491			
2. Leadership/Autonomy	1.5			1.6	448	.76		.34
Independence		2.1		1.6	498	.68	.51	
Feeling your independence.			2.2	1.5	497			
Being on your own.			1.9	1.7	490			
Autonomy		1.5		1.7	493			
Being your own boss.			1.5	1.7	493			
Control Power		1.8		1.6	494			
Being in control of things that happen.			1.8	1.6	494			
Teaching-Sharing Skills		1.7		1.5	493			
Sharing what you have learned with others.			1.7	1.5	493			
Leading Others		.6		1.5	493			
Leading other people.			.6	1.5	493			
3. Risk Taking	.4			1.9	496	.16		.08
Risk Taking		- .1		2.3	492			
Chancing dangerous situations.			- .1	2.3	492			
Risk Moderation		.8		1.8	494			
Being near others who could help you if you need them.			.8	1.8	494			
Risk Avoidance		.6		1.8	493			
Avoiding the unexpected.			.6	1.8	493			
4. Equipment	2.1			1.5	494			
Equipment		2.1		1.5	494			
Using your equipment.			2.1	1.5	494			
5. Family Togetherness	2.5			1.5	494	.82	.69	
Family Togetherness		2.5		1.5	498	.82	.69	
Doing something with your family.			2.8	1.5	489			
Bring your family closer together.			2.3	1.6	492			
6. Being with People	2.4			1.5	498	.78		.54
Being with Friends		2.2		1.5	497	.76	.61	
Being with other members of your group.			2.0	1.6	493			
Being with friends.			2.3	1.4	496			
Being with Similar People		2.6		1.4	497			
Being with others who enjoy the same thing you do.			2.6	1.4	497			
7. Meeting-Observing New People	.5			2.1	496	.77	.62	
Meeting New People		.9		2.0	496			
Meeting other people in the area.			.9	2.0	496			
Observing Other People		.1		2.2	496			
Observing other people in the area.			.1	2.2	496			
8. General Learning	2.4			1.4	498	.83		.50
General Learning		2.5		1.3	492			
Developing your knowledge of things there.			2.5	1.3	492			
Exploration		2.5		1.5	498	.69	.53	
Experiencing new and different things.			2.6	1.3	497			
Discovering something new.			2.5	1.4	497			
Geography of Area		1.9		1.5	493			
Learning about the topography of the land.			1.9	1.5	493			
Learn about Nature		2.6		1.3	496			
Learning more about nature.			2.6	1.3	496			
9. Relationships with Nature	3.4			.9	498	.82		.54
Scenery		3.5		.8	498	.77	.62	
Viewing the scenery.			3.5	.8	497			
Viewing the scenic beauty.			3.5	.8	497			
General Nature Experience		3.4		.9	498	.64	.48	
Being close to nature.			3.4	.9	497			
Enjoying the sounds and smells of nature.			3.4	.9	498			

Table D-1. Continued.

Recreation Experience Preferences Domain Scale Item	Mean[a] D	Mean[a] S	Mean[a] I	Total Sample S.D.[b]	N	Alpha[c]	Inter-Item Correlation[d] r	$\bar{r}$
10. Reflect on Personal Values	1.8			1.6	497	.76		.50
Spiritual		1.9		1.7	494			
Developing personal spiritual values.			1.9	1.7	494			
Intropsection		1.6		1.6	496	.77	.61	
Thinking about your personal values.			1.8	1.5	490			
Thinking about who you are.			1.4	1.6	494			
11. Creativity	1.6			1.5	494			
Creativity		1.6		1.5	494			
Being creative.			1.6	1.5	494			
12. Nostalgia	2.1			1.7	494			
Nostalgia		2.1		1.7	494			
Thinking about good times you've had in the past.			2.1	1.7	494			
13. Exercise/Physical Fitness	2.7			1.4	498	.79	.65	
Exercise/Physical Fitness		2.7		1.4	498	.79	.65	
Getting exercise.			2.8	1.3	496			
Keeping physically fit.			2.5	1.4	495			
14. Physical Rest	2.2			1.8	494			
Physical Rest		2.2		1.8	494			
Relaxing physically.			2.2	1.8	494			
15. Escape Personal-Social Pressure	3.0			1.2	498	.75		.44
Tension Release		2.7		1.4	495			
Releasing or reducing some built-up tensions.			2.7	1.4	495			
Slow Down Mentally		2.7		1.4	495			
Giving your mind a rest.			2.7	1.4	495			
Escape Role Overloads		3.4		1.0	495			
Getting away from the usual demands of life.			3.4	1.0	495			
Escape Daily Routine		3.2		1.1	498			
Having a change from your daily routine.			3.2	1.1	498			
16. Escape Physical Pressure	2.7			1.4	498	.81		.37
Tranquility		2.8		1.3	498	.64		.40
Experiencing tranquility.			2.8	1.3	494			
Experiencing solitude.			2.3	1.6	491			
Experiencing peace and calm.			3.5	.9	494			
Seek Open Space		3.0		1.2	494			
Experiencing open space.			3.0	1.2	494			
Privacy		1.6		1.9	496	.53	.36	
Feeling isolated.			1.7	2.0	493			
Being alone.			1.4	1.9	496			
Escape Crowds		3.1		1.4	497			
Being away from crowds of people.			3.1	1.4	497			
Escape Physical Stressors		2.9		1.4	495			
Being away from noise back home.			2.9	1.4	495			
17. Security	2.2			1.8	492			
Social Security		2.2		1.8	492			
Being near considerate people.			2.2	1.8	492			
18. Escaping Family	.1			2.2	490			
Escaping Family		.1		2.2	490			
Being away from the family for a while.			.1	2.2	490			
19. Temperature	1.6			1.7	496			
Temperature		1.6		1.7	496			
Having more agreeable temperatures.			1.6	1.7	496			

[a]Means are based on responses to a nine-point response format ranging from +4 (very strongly adds) to -4 (very strongly detracts).

[b]Standard deviations for multiple-item scales are computed by averaging the standard deviations of the items within that scale. Standard deviations for multiple scale domains are computed by averaging the standard deviations of the scales within that domain.

[c]Alpha reliability for scales and domains containing more than one item using the Cronbach alpha computation for internal consistency.

[d]For scales and domains consisting of only two items, "r", or the correlation between the two items, is reported here. The average inter-item correlation, "$\bar{r}$", is reported for scales and domains consisting of three or more items.

Table D-2. Recreation experience preference domain (D), scale (S), and item (I) means for those respondents sampled in the Sierra National Forest using the "importance rating" response format (Summer, 1979).

Recreation Experience Preferences Domain Scale Item	Mean[a] D	Mean[a] S	Mean[a] I	Total Sample S.D.[b]	Total Sample N	Inter-Item Correlation[d] Alpha[c]	Inter-Item Correlation[d] r	Inter-Item Correlation[d] $\bar{r}$
1. Achievement	3.3			1.6	414	.84		.42
Reinforcing Self Image		3.5		1.8	408			
Gaining a sense of self confidence.			3.5	1.8	408			
Social Recognition		2.1		1.5	410			
Showing others you can do it.			2.1	1.5	410			
Skill Development		3.6		1.6	413	.76	.61	
Becoming better at it.			3.7	1.6	407			
Developing your skills and abilities.			3.5	1.6	404			
Competence Testing		3.5		1.6	410			
Testing your abilities.			3.5	1.6	410			
Seeking Stimulation		3.6		1.6	411	.63	.46	
Experiencing excitement.			3.3	1.7	411			
Experiencing feelings of exhilaration.			4.0	1.5	405			
2. Leadership/Autonomy	3.2			1.6	415	.79		.38
Independence		3.7		1.7	414	.66	.47	
Feeling your independence.			3.9	1.7	413			
Being on your own.			3.6	1.6	410			
Autonomy		3.2		1.8	407			
Being your own boss.			3.2	1.8	407			
Control Power		3.6		1.6	406			
Being in control of things that happen.			3.6	1.6	406			
Teaching-Sharing Skills		3.5		1.5	406			
Sharing what you have learned with others.			3.5	1.5	406			
Leading Others		2.1		1.3	409			
Leading other people.			2.1	1.3	409			
3. Risk Taking	2.5			1.5	413	.57		.27
Risk Taking		2.1		1.4	408			
Chancing dangerous situations.			2.1	1.4	408			
Risk Moderation		2.9		1.6	411			
Being near others who could help you if you need them.			2.9	1.6	411			
Risk Avoidance		2.6		1.5	405			
Avoiding the unexpected.			2.6	1.5	405			
4. Equipment	3.7			1.6	412			
Equipment		3.7		1.6	412			
Using your equipment.			3.7	1.6	412			
5. Family Togetherness	4.5			1.6	413	.86	.77	
Family Togetherness		4.5		1.6	413	.86	.77	
Doing something with your family.			4.8	1.5	410			
Bringing your family closer together.			4.2	1.7	410			
6. Being with People	4.2			1.4	415	.79		.55
Being with Friends		3.9		1.5	413	.75	.60	
Being with other members of your group.			3.7	1.6	411			
Being with your friends.			4.1	1.4	410			
Being with Similar People		4.4		1.4	411			
Being with others who enjoy the same thing you do.			4.4	1.4	411			
7. Meeting-Observing New People	2.5			1.4	412	.74	.59	
Meeting New People		2.9		1.5	406			
Meeting other people in the area.			2.9	1.5	406			
Observing Other People		2.1		1.3	408			
Observing other people in the area.			2.1	1.3	408			
8. General Learning	4.2			1.4	414	.85		.53
General Learning		4.3		1.3	405			
Developing your knowledge of things there.			4.3	1.3	405			
Exploration		4.3		1.3	414	.74	.58	
Experiencing new and different things.			4.4	1.3	411			
Discovering something new.			4.1	1.4	411			
Geography of Area		3.7		1.5	406			
Learning about the topography of the land.			3.7	1.5	406			
Learn About Nature		4.4		1.3	407			
Learning more about nature.			4.4	1.3	407			
9. Relationships with Nature	5.2			1.0	415	.85		.60
Scenery		5.3		.9	415	.86	.76	
Viewing the scenery.			5.3	.8	415			
Viewing the scenic beauty.			5.2	.9	411			
General Nature Experience		5.1		1.0	415	.72	.57	
Being close to nature.			5.2	1.0	414			
Enjoying the sounds and smells of nature.			5.1	1.0	410			

Table D-2. Continued.

Recreation Experience Preferences Domain Scale Item	Mean[a] D	Mean[a] S	Mean[a] I	Total Sample S.D.[b]	N	Alpha[c]	Inter-Item Correlation[d] r	$\bar{r}$
10. Reflect on Personal Values	3.5			1.6	413	.80		.55
Spiritual		3.8		1.6	410			
Developing personal spiritual values.			3.9	1.6	410			
Introspection		3.2		1.6	412	.74	.59	
Thinking about your personal values.			3.5	1.6	410			
Thinking about who you are.			3.0	1.6	407			
11. Creativity	3.3			1.5	407			
Creativity		3.3		1.5	407			
Being creative.			3.3	1.5	407			
12. Nostalgia	3.6			1.6	410			
Nostalgia		3.6		1.6	410			
Thinking about good times you've had in the past.			3.6	1.6	410			
13. Exercise/Physical Fitness	4.4			1.3	414	.76	.61	
Exercise/Physical Fitness		4.4		1.3	414	.76	.61	
Getting exercise.			4.5	1.3	408			
Keeping physically fit.			4.3	1.3	412			
14. Physical Rest	4.1			1.5	414			
Physical Rest		4.1		1.5	414			
Relaxing physically.			4.1	1.5	414			
15. Escape Personal-Social Pressure	4.9			1.2	414	.77		.47
Tension Release		4.6		1.3	408			
Releasing or reducing some built-up tensions.			4.6	1.3	408			
Slow Down Mentally		4.5		1.4	409			
Giving your mind a rest.			4.5	1.4	409			
Escape Role Overloads		5.3		1.0	412			
Getting away from the usual demands of life.			5.3	1.0	412			
Escape Daily Routine		5.0		1.1	414			
Having a change from your daily routine.			5.0	1.1	414			
16. Escape Physical Pressure	4.5			1.4	414	.84		.41
Tranquility		4.7		1.3	414	.70		.45
Experiencing tranquility.			4.6	1.3	410			
Experiencing solitude.			4.0	1.6	406			
Experiencing peace and calm.			5.4	.9	411			
Seek Open Space		4.9		1.2	409			
Experiencing open space.			4.9	1.2	409			
Privacy		3.5		1.7	414	.68	.48	
Feeling isolated.			3.6	1.7	407			
Being alone.			3.3	1.7	407			
Escape Crowds		5.0		1.3	411			
Being away from crowds of people.			5.0	1.3	411			
Escape Physical Stressors		4.7		1.3	409			
Being away from noise back home.			4.7	1.3	409			
17. Security	4.3			1.5	408			
Social Security		4.3		1.5	408			
Being near considerate people.			4.3	1.5	408			
18. Escaping Family	2.2			1.5	401			
Escaping Family		2.2		1.5	401			
Being away from the family for awhile.			2.2	1.5	401			
19. Temperature	3.2			1.7	395			
Temperature		3.2		1.7	395			
Having more agreeable temperatures.			3.2	1.7	395			

[a]Means are based on responses to a six-point response format ranging from 6 (extremely important) to 1 (not important).

[b]Standard deviations for multiple-item scales are computed by averaging the standard deviations of the items within that scale. Standard deviations for multiple scale domains are computed by averaging the standard deviations of the scales within that domain.

[c]Alpha reliability for scales and domains consisting of more than one item using the Cronbach alpha computation internal consistency.

[d]For scales and domains consisting of only two items, "r", or the correlation between the two items, is reported here. The average inter-item correlation, "$\bar{r}$", is reported for scales and domains consisting of three or more items.

Table D-3. Recreation experience preference domain (D), scale (S), and item (I) means for those respondents sampled in the Sierra National Forest using the "adds to - detracts from satisfaction" response format, grouped by their most important activity (Summer, 1979).

Recreation Experience Preferences Domain / Scale / Item	Camping Near Auto					Camping Away From Auto					Hiking					Fishing				
	Mean[a]			S.D.[b]	N	Mean[a]			S.D.[b]	N	Mean[a]			S.D.[b]	N	Mean[a]			S.D.[b]	N
	D	S	I			D	S	I			D	S	I			D	S	I		
1. Achievement	1.3			1.5	76	1.9			1.6	67	1.8			1.4	97	1.8			1.6	113
Reinforcing Self Image		1.7		1.4	74		2.2		1.5	66		2.3		1.5	95		1.8		1.6	111
Gaining a sense of self confidence.			1.7	1.4	74			2.2	1.5	66			2.3	1.5	95			1.8	1.6	111
Social Recognition		.5		1.6	76		.7		1.9	67		.5		1.6	97		.9		1.7	113
Showing others you can do it.			.5	1.6	76			.7	1.9	67			.5	1.6	97			.9	1.7	113
Skill Development		1.5		1.4	76		2.1		1.4	67		2.0		1.5	97		2.3		1.5	113
Becoming better at it.			1.6	1.4	76			2.4	1.4	66			2.2	1.6	96			2.5	1.5	112
Developing your skills and abilities.			1.3	1.4	76			1.9	1.4	67			1.8	1.4	95			2.0	1.5	113
Competence Testing		1.4		1.4	76		2.2		1.4	67		2.2		1.3	95		2.2		1.4	111
Testing your abilities.			1.4	1.4	75			2.2	1.4	67			2.2	1.3	95			2.2	1.4	111
Seeking Stimulation		1.5		1.5	76		2.3		1.5	67		2.3		1.4	97		2.0		1.7	113
Experiencing excitement.			1.2	1.6	75			1.9	1.6	67			1.9	1.7	97			1.7	2.0	111
Experiencing feelings of exhilaration.			1.8	1.4	75			2.7	1.3	67			2.8	1.1	97			2.2	1.5	111
2. Leadership/Autonomy	1.3			1.5	76	1.6			1.6	67	1.6			1.5	97	1.6			1.6	113
Independence		1.6		1.5	76		2.3		1.7	67		2.4		1.5	97		2.1		1.7	113
Feeling your independence.			1.9	1.4	76			2.4	1.8	67			2.6	1.4	97			2.3	1.5	112
Being on your own.			1.3	1.5	74			2.1	1.6	67			2.1	1.6	95			1.9	1.8	111
Autonomy		1.4		1.5	76		1.5		1.6	67		1.6		1.8	96		1.5		1.7	111
Being your own boss.			1.4	1.5	76			1.5	1.6	67			1.6	1.8	96			1.5	1.7	111
Control Power		1.5		1.5	76		2.0		1.5	66		1.8		1.4	96		1.9		1.6	113
Being in control of things that happen.			1.5	1.5	76			2.0	1.5	66			1.8	1.4	96			1.9	1.6	113
Teaching-Sharing Skills		1.6		1.4	76		1.4		1.5	67		1.8		1.3	97		1.9		1.5	112
Sharing what you have learned with others.			1.6	1.4	76			1.4	1.5	67			1.8	1.3	97			1.9	1.5	112
Leading Others		.4		1.5	76		.8		1.8	67		.7		1.5	96		.7		1.5	111
Leading other people.			.4	1.5	76			.8	1.8	67			.7	1.5	96			.7	1.5	111
3. Risk Taking	.5			1.6	76	.3			2.0	67	.2			1.9	97	.7			2.0	113
Risk Taking		-.8		2.0	76		.0		2.3	67		.1		2.4	96		-.2		2.4	112
Chancing dangerous situations.			-.8	2.0	74			.0	2.3	67			.1	2.4	96			-.2	2.4	112
Risk Moderation		1.3		1.4	76		.4		1.9	67		.4		1.6	97		1.1		1.8	112
Being near others who could help you if you need them.			1.3	1.4	75			.4	1.9	67			.4	1.6	97			1.1	1.8	112
Risk Avoidance		1.0		1.5	75		.5		1.9	67		.1		1.7	96		1.1		1.8	112
Avoiding the unexpected.			1.0	1.5	75			.5	1.9	67			.1	1.7	96			1.1	1.8	112
4. Equipment	2.2			1.3	76	2.0			1.7	67	1.7			1.4	96	2.4			1.5	112
Equipment		2.2		1.3	76		2.0		1.7	67		1.7		1.4	96		2.4		1.5	112
Using your equipment.			2.2	1.3	76			2.0	1.7	67			1.7	1.4	96			2.4	1.5	112
5. Family Togetherness	2.8			1.3	76	2.2			1.7	67	2.0			1.7	97	2.8			1.4	113
Family Togetherness		2.8		1.3	76		2.2		1.7	67		2.0		1.7	97		2.8		1.4	113
Doing something with your family.			3.1	1.1	75			2.4	1.7	67			2.2	1.8	96			3.1	1.3	110
Bringing your family closer together.			2.4	1.6	75			2.0	1.7	66			1.8	1.5	95			2.6	1.5	113

Table D-3. Continued.

Recreation Experience Preferences Domain Scale Item	Camping Near Auto					Camping Away From Auto					Hiking					Fishing				
	Mean[a]			S.D.[b]	N	Mean[a]			S.D.[b]	N	Mean[a]			S.D.[b]	N	Mean[a]			S.D.[b]	N
	D	S	I			D	S	I			D	S	I			D	S	I		
6. Being with People	2.3			1.4	76	2.5			1.4	67	2.1			1.5	97	2.5			1.3	113
Being with Friends		2.1		1.4	76		2.2		1.5	67		1.8		1.5	97		2.3		1.4	113
Being with other members of your group.			2.0	1.4	76			2.0	1.7	67			1.6	1.6	96			2.1	1.5	112
Being with friends.			2.2	1.4	75			2.4	1.4	67			2.0	1.3	97			2.5	1.4	113
Being with Similar People		2.5		1.5	76		2.7		1.4	67		2.3		1.4	97		2.7		1.3	113
Being with others who enjoy the same thing you do.			2.5	1.5	76			2.7	1.4	67			2.3	1.4	97			2.7	1.3	113
7. Meeting-Observing New People	1.0			1.9	76	-.5			2.1	67	.1			2.0	97	.8			2.1	113
Meeting New People		1.4		1.7	76		-1.		2.1	67		.6		1.9	97		1.2		1.9	113
Meeting other people in the area.			1.4	1.7	76			-.1	2.1	67			.6	1.9	97			1.2	1.9	112
Observing Other People		.5		2.1	76		-.8		2.0	67		-.5		2.1	97		.5		2.2	113
Observing other people in the area.			.5	2.1	76			-.8	2.0	67			-.5	2.1	97			.5	2.2	113
8. General Learning	2.3			1.4	76	2.6			1.3	67	2.7			1.2	97	2.4			1.4	113
General Learning		2.5		1.3	75		2.7		1.2	67		2.7		1.2	95		2.5		1.4	111
Developing your knowledge of things there.			2.5	1.3	75			2.7	1.2	67			2.7	1.2	95			2.5	1.4	111
Exploration		2.4		1.4	76		2.6		1.2	67		2.9		1.1	97		2.5		1.4	113
Experiencing new and different things.			2.4	1.3	76			2.8	1.1	67			3.0	1.1	97			2.5	1.3	112
Discovering something new.			2.3	1.4	76			2.5	1.4	67			2.9	1.1	97			2.5	1.4	113
Geography of Area		1.8		1.5	75		2.3		1.4	67		2.2		1.3	96		1.8		1.5	112
Learning about the topography of the land.			1.8	1.5	75			2.3	1.4	67			2.2	1.3	96			1.8	1.5	112
Learn About Nature		2.4		1.3	76		2.8		1.2	67		2.9		1.0	97		2.8		1.3	113
Learning more about nature.			2.4	1.3	76			2.8	1.2	67			2.9	1.0	97			2.8	1.3	113
9. Relationships with Nature	3.3			.9	76	3.6			.8	67	3.6			.7	97	3.4			.9	113
Scenery		3.4		.8	76		3.6		.7	67		3.7		.6	97		3.4		.9	113
Viewing the scenery.			3.4	.8	76			3.7	.6	67			3.7		97			3.4	.9	112
Viewing the scenic beauty.			3.4	.8	75			3.5	.8	67			3.6	.7	97			3.4	.9	113
General Nature Experience		3.3		1.0	76		3.6		.9	67		3.5		.7	97		3.3		.9	113
Being close to nature.			3.3	.9	76			3.7	.8	67			3.6	.7	97			3.3	1.0	113
Enjoying the sounds and smells of nature.			3.3	1.1	76			3.5	.9	67			3.5	.7	97			3.3	..9	113
10. Reflect on Personal Values	1.7			1.5	76	2.0			1.5	67	1.9			1.6	97	1.7			1.6	112
Spiritual		2.1		1.4	76		2.2		1.5	66		2.0		1.7	96		1.9		1.6	112
Developing personal spiritual values.			2.1	1.4	76			2.2	1.5	66			2.0	1.7	96			1.9	1.6	112
Introspection		1.4		1.6	76		1.8		1.5	67		1.8		1.5	97		1.5		1.6	112
Thinking about your personal values.			1.8	1.5	75			2.0	1.5	67			1.9	1.5	96			1.7	1.6	110
Thinking about who you are.			1.0	1.7	76			1.6	1.5	67			1.7	1.5	97			1.3	1.5	112
11. Creativity	1.5			1.6	76	1.7			1.5	67	2.0			1.4	97	1.6			1.5	112
Creativity		1.5		1.6	76		1.7		1.5	67		2.0		1.4	97		1.6		1.5	112
Being creative.			1.5	1.6	76			1.7	1.5	67			2.0	1.4	97			1.6	1.5	112
12. Nostalgia	1.9			1.7	76	1.7			1.9	67	1.9			1.7	96	2.6			1.4	111
Nostalgia		1.9		1.7	76		1.7		1.9	67		1.9		1.7	96		2.6		1.4	111
Thinking about good times you've had in the past.			1.9	1.7	76			1.7	1.9	67			1.9	1.7	96			2.6	1.4	111

Table D-3. Continued.

Recreation Experience Preferences Domain Scale Item	Camping Near Auto Mean[a] D	S	I	S.D.[b]	N	Camping Away From Auto Mean[a] D	S	I	S.D.[b]	N	Hiking Mean[a] D	S	I	S.D.[b]	N	Fishing Mean[a] D	S	I	S.D.[b] S.D.	N
13. Exercise/Physical Fitness	2.2			1.3	76	3.1			1.1	67	3.0			1.1	97	2.6			1.5	113
Exercise/Physical Fitness		2.2		1.3	76		3.1		1.1	67		3.0		1.1	97		2.6		1.5	113
Getting exercise.			2.4	1.2	76			3.3	1.1	67			3.2	1.1	97			2.7	1.5	111
Keeping physically fit.			2.0	1.3	76			3.0	1.2	67			2.8	1.1	96			2.5	1.5	113
14. Physical Rest	2.6			1.4	76	2.0			1.8	67	1.6			2.1	97	2.4			1.5	110
Physical Rest		2.6		1.4	76		2.0		1.8	67		1.6		2.1	97		2.4		1.5	110
Relaxing physically.			2.6	1.4	76			2.0	1.8	67			1.6	2.1	97			2.4	1.5	110
15. Escape Personal-Social Pressure	2.9			1.1	76	3.1			1.1	67	3.0			1.2	97	3.0			1.3	113
Tension Release		2.7		1.1	76		2.9		1.4	67		2.8		1.2	97		2.6		1.3	113
Releasing or reducing some built up tensions.			2.7	1.1	76			2.9	1.4	67			2.8	1.2	97			2.6	1.6	113
Slow Down Mentally		2.6		1.3	76		2.8		1.2	67		2.6		1.5	97		2.8		1.4	112
Giving your mind a rest.			2.6	1.3	76			2.8	1.2	67			2.6	1.5	97			2.8	1.4	112
Escape Role Overloads		3.2		1.1	75		3.6		.8	67		3.4		.9	97		3.4		1.0	112
Getting away from the usual demands of life.			3.2	1.1	75			3.6	.8	67			3.4	.9	97			3.4	1.0	112
Escape Daily Routine		3.2		1.0	76		3.2		1.0	67		3.1		1.2	97		3.2		1.2	113
Having a change from your daily routine.			3.2	1.0	76			3.2	1.0	67			3.1	1.2	97			3.2	1.2	113
16. Escape Physical Pressure	2.4			1.6	76	3.0			1.3	67	2.9			1.3	97	2.7			1.5	113
Tranquility		2.7		1.4	76		3.0		1.2	67		3.0		1.1	97		2.9		1.3	113
Experiencing tranquility.			2.9	1.2	75			3.0	1.4	67			3.0	1.2	96			2.7	1.4	113
Experiencing solitude.			1.9	1.8	76			2.5	1.5	67			2.6	1.4	97			2.3	1.5	109
Experiencing peace and calm.			3.4	1.1	76			3.6	.8	67			3.6	.7	97			3.5	.9	111
Seek Open Space		2.8		1.3	76		3.3		1.0	67		3.3		1.0	96		3.0		1.2	112
Experiencing open space.			2.8	1.3	76			3.3	1.0	67			3.2	1.0	96			3.0	1.2	112
Privacy		1.0		2.0	76		2.0		1.7	67		1.9		1.8	97		1.4		2.1	112
Feeling isolated.			1.2	2.0	76			2.3	1.7	66			2.0	1.9	97			1.6	2.1	110
Being alone.			.8	2.0	76			1.8	1.8	67			1.8	1.6	97			1.3	2.0	112
Escape Crowds		2.8		1.6	76		3.4		1.3	67		3.3		1.2	97		3.2		1.2	112
Being away from crowds of people.			2.8	1.6	76			3.4	1.3	67			3.3	1.2	97			3.2	1.2	112
Escape Physical Stressors		2.7		1.5	76		3.1		1.1	67		3.1		1.2	97		3.1		1.1	112
Being away from noise back home.			2.7	1.5	76			3.1	1.1	67			3.1	1.2	97			3.1	1.1	112
17. Security	2.4			1.7	75	2.2			2.1	67	2.1			1.9	96	2.3			1.8	111
Social Security		2.4		1.7	75		2.2		2.1	67		2.1		1.9	96		2.3		1.8	111
Being near considerate people.			2.4	1.7	75			2.2	2.1	67			2.1	1.9	96			2.3	1.8	111
18. Escaping Family	-.4			2.2	76	.3			2.3	67	.6			1.9	95	.1			2.0	111
Escaping Family		-.4		2.2	76		.3		2.3	67		.6		1.9	95		.1		2.0	111
Being away from the family for awhile.			-.4	2.2	76			.3	2.3	67			.6	1.9	95			.1	2.0	111
19. Temperature	1.9			1.6	76	1.3			1.8	67	1.3			1.7	97	1.8			1.8	112
Temperature		1.9		1.6	76		1.3		1.8	67		1.3		1.7	97		1.8		1.8	112
Having more agreeable temperatures.			1.9	1.6	76			1.3	1.8	67			1.3	1.7	97			1.8	1.8	112

[a]Means are based on responses to a nine-point response format ranging from +4 (very strongly adds) to -4 (very strongly detracts).

[b]Standard deviations for multiple-item scales are computed by averaging the standard deviations of the items within that scale. Standard deviations for multiple scale domains are computed by averaging the standard deviations of the scales within that domain.

Table D-4. Recreation experience preference domain (D), scale (S), and item (I) means for those respondents sampled in the Sierra National Forest using the "importance rating" response format, grouped by their most important activity (Summer, 1979).

Recreation Experience Preferences Domain Scale Item	Camping Near Auto Mean[a] D	S	I	S.D.[b]	N	Camping Away From Auto Mean[a] D	S	I	S.D.[b]	N	Hiking Mean[a] D	S	I	S.D.[b]	N	Fishing Mean[a] D	S	I	S.D.[b]	N
1. Achievement	2.8			1.4	52	3.5			1.5	46	3.2			1.6	82	3.4			1.6	137
Reinforcing Self Image		2.9		1.5	50		3.9		1.7	46		3.8		1.7	81		3.5		1.8	135
Gaining a sense of self confidence.			2.9	1.5	50			3.9	1.7	46			3.8	1.7	81			3.5	1.8	135
Social Recognition		1.9		1.2	52		2.1		1.5	46		1.9		1.3	82		2.3		1.5	135
Showing others you can do it.			1.9	1.2	52			2.1	1.5	46			1.9	1.3	82			2.3	1.5	135
Skill Development		3.1		1.3	52		3.7		1.4	46		3.2		1.7	82		3.9		1.6	136
Becoming better at it.			3.1	1.3	52			3.8	1.5	46			3.3	1.7	79			4.0	1.6	136
Developing your skills and abilities.			3.0	1.3	51			3.6	1.3	45			3.2	1.7	81			3.7	1.7	133
Competence Testing		3.1		1.3	52		3.6		1.2	45		3.4		1.6	82		3.7		1.7	135
Testing your abilities.			3.1	1.3	52			3.6	1.2	45			3.4	1.6	82			3.7	1.7	135
Seeking Stimulation		3.2		1.5	52		4.0		1.5	46		3.6		1.6	82		3.7		1.6	135
Experiencing excitement.			2.7	1.5	52			3.5	1.7	46			3.1	1.7	82			3.5	1.6	135
Experiencing feelings of exhilaration.			3.7	1.5	51			4.5	1.4	46			4.0	1.5	82			3.9	1.6	132
2. Leadership/Autonomy	3.0			1.4	52	3.4			1.5	46	2.9			1.5	82	3.5			1.6	137
Independence		3.5		1.4	52		4.2		1.5	46		3.5		1.7	82		3.9		1.7	137
Feeling your independence.			3.5	1.3	51			4.5	1.5	46			3.8	1.7	82			4.1	1.7	137
Being on your own.			3.5	1.6	52			4.0	1.5	46			3.2	1.6	82			3.8	1.6	135
Autonomy		3.1		1.6	51		3.3		1.8	46		2.9		1.7	82		3.4		1.8	132
Being your own boss.			3.1	1.6	51			3.3	1.8	46			2.9	1.7	82			3.4	1.8	132
Control Power		3.1		1.3	51		3.6		1.5	46		3.2		1.6	79		4.1		1.5	133
Being in control of things that happen.			3.1	1.3	51			3.6	1.5	46			3.2	1.6	79			4.1	1.5	133
Teaching-Sharing Skills		3.2		1.4	52		3.5		1.3	46		3.1		1.5	81		3.9		1.4	133
Sharing what you have learned with others.			3.2	1.4	52			3.5	1.3	46			3.1	1.5	82			3.9	1.4	133
Leading Others		1.9		1.1	52		2.4		1.4	46		2.0		1.3	82		2.2		1.5	133
Leading other people.			1.9	1.1	52			2.4	1.4	46			2.0	1.3	82			2.2	1.5	133
3. Risk Taking	2.3			1.4	52	2.1			1.3	46	2.4			1.5	82	2.8			1.5	136
Risk Taking		1.6		1.0	51		2.3		1.5	46		2.2		1.5	82		2.1		1.5	133
Chancing dangerous situations.			1.6	1.0	51			2.3	1.5	46			2.2	1.5	82			2.1	1.5	133
Risk Moderation		2.7		1.5	52		2.1		1.4	45		2.7		1.5	81		3.2		1.6	136
Being near others who could help you if you need them.			2.7	1.5	52			2.1	1.4	45			2.7	1.5	81			3.2	1.6	136
Risk Avoidance		2.6		1.6	50		1.8		1.1	46		2.2		1.4	81		2.9		1.6	133
Avoiding the unexpected.			2.6	1.6	50			1.8	1.1	46			2.2	1.4	81			2.9	1.6	133
4. Equipment	3.8			1.5	52	3.5			1.5	46	3.0			1.4	82	4.1			1.5	137
Equipment		3.8		1.5	52		3.5		1.5	46		3.0		1.4	82		4.1		1.5	137
Using your equipment.			3.8	1.5	52			3.5	1.5	46			3.0	1.4	82			4.1	1.5	137
5. Family Togetherness	4.8			1.3	52	3.9			1.9	46	3.9			1.8	81	4.7			1.5	137
Family Togetherness		4.8		1.3	52		3.9		1.9	46		3.9		1.8	81		4.7		1.5	137
Doing something with your family.			5.2	1.1	52			4.1	1.8	46			4.2	1.7	79			4.8	1.4	136
Bringing your family closer together.			4.5	1.6	52			3.7	1.9	46			3.5	1.9	81			4.5	1.6	134

Table D-4. Continued.

Recreation Experience Preferences Domain Scale Item	Camping Near Auto Mean[a] D	S	I	S.D.[b]	N	Camping Away From Auto Mean[a] D	S	I	S.D.[b]	N	Hiking Mean[a] D	S	I	S.D.[b]	N	Fishing Mean[a] D	S	I	S.D.[b]	N
6. Being with People	4.0			1.2	52	4.1			1.4	46	3.7			1.6	82	4.4			1.4	137
Being with Friends		3.8		1.4	52		3.7		1.4	46		3.5		1.6	82		4.2		1.4	135
Being with other members of your group.			3.6	1.5	51			3.4	1.5	46			3.3	1.5	82			3.9	1.5	134
Being with friends.			3.9	1.4	52			4.0	1.3	46			3.7	1.6	82			4.4	1.3	134
Being with Similar People		4.3		1.2	50		4.4		1.3	46		3.9		1.6	81		4.6		1.4	137
Being with others who enjoy the same thing you do.			4.3	1.2	50			4.4	1.3	46			3.9	1.6	81			4.6	1.4	137
7. Meeting-Observing New People	2.3			1.3	52	2.1			1.2	46	2.1			1.3	82	2.7			1.5	135
Meeting New People		2.5		1.4	50		2.5		1.4	46		2.3		1.4	81		3.2		1.5	134
Meeting other people in the area.			2.5	1.4	50			2.5	1.4	46			2.3	1.4	81			3.2	1.5	134
Observing Other People		2.1		1.3	52		1.6		.9	45		1.8		1.2	81		2.3		1.5	133
Observing other people in the area.			2.1	1.3	52			1.6	.9	45			1.8	1.2	81			2.3	1.5	133
8. General Learning	3.9			1.3	52	4.5			1.2	46	4.2			1.4	82	4.3			1.4	136
General Learning		3.9		1.1	51		4.6		1.2	45		4.3		1.4	79		4.5		1.2	136
Developing your knowledge of things there.			3.9	1.1	51			4.6	1.2	45			4.3	1.4	79			4.5	1.2	136
Exploration		4.1		1.2	52		4.5		1.1	46		4.3		1.4	82		4.4		1.3	136
Experiencing new and different things.			4.2	1.1	52			4.7	1.0	46			4.4	1.4	81			4.6	1.3	135
Discovering something new.			3.9	1.3	52			4.3	1.2	46			4.1	1.5	82			4.3	1.3	135
Geography of Area		3.5		1.2	52		3.9		1.4	46		3.8		1.6	80		3.7		1.6	134
Learning about the topography of the land			3.5	1.2	52			3.9	1.4	46			3.8	1.6	80			3.7	1.6	134
Learn About Nature		4.2		1.3	52		4.7		1.0	46		4.5		1.3	81		4.4		1.3	132
Learning more about nature.			4.2	1.3	52			4.7	1.0	46			4.5	1.3	81			4.4	1.3	132
9. Relationships with Nature	5.1			1.1	52	5.4			.8	46	5.4			.9	82	5.1			1.0	137
Scenery		5.2		.9	52		5.5		.6	46		5.4		.8	82		5.2		.9	137
Viewing the scenery.			5.3	.8	52			5.5	.6	46			5.5	.7	82			5.2	.9	137
Viewing the scenic beauty.			5.2	.9	52			5.5	.7	46			5.4	.9	80			5.1	1.0	135
General Nature Experience		4.9		1.2	52		5.3		.9	46		5.3		.9	82		5.1		1.0	137
Being close to nature.			5.0	1.1	52			5.4	.8	46			5.4	.8	81			5.2	1.0	137
Enjoying the sounds and smells of nature.			4.9	1.3	52			5.3	.9	46			5.2	1.0	82			5.1	1.0	135
10. Reflect on Personal Values	3.3			1.3	52	4.0			1.4	46	3.6			1.7	82	3.4			1.6	136
Spiritual		3.7		1.3	50		4.4		1.4	46		4.0		1.7	82		3.6		1.6	136
Developing personal spiritual values.			3.7	1.3	50			4.4	1.4	46			4.0	1.7	82			3.6	1.6	136
Introspection		2.9		1.4	52		3.7		1.4	46		3.3		1.7	82		3.2		1.6	135
Thinking about your personal values.			3.4	1.4	52			4.0	1.2	46			3.5	1.7	82			3.5	1.6	134
Thinking about who you are.			2.4	1.3	52			3.4	1.6	46			3.1	1.6	81			3.0	1.6	132
11. Creativity	3.1			1.3	52	3.7			1.3	45	3.1			1.7	82	3.5			1.5	133
Creativity		3.1		1.3	52		3.7		1.3	45		3.1		1.7	82		3.5		1.5	133
Being creative.			3.1	1.3	52			3.7	1.3	45			3.1	1.7	82			3.5	1.5	133
12. Nostalgia	3.4			1.5	51	3.6			1.6	46	3.0			1.7	81	4.0			1.6	135
Nostalgia		3.4		1.5	51		3.6		1.6	46		3.0		1.7	81		4.0		1.6	135
Thinking about good times you've had in the past.			3.4	1.5	51			3.6	1.6	46			3.0	1.7	81			4.0	1.6	135

Table D-4. Continued.

Recreation Experience Preferences Domain Scale Item	Camping Near Auto Mean[a] D	S	I	S.D.[b]	N	Camping Away From Auto Mean[a] D	S	I	S.D.[b]	N	Hiking Mean[a] D	S	I	S.D.[b]	N	Fishing Mean[a] D	S	I	S.D.[b]	N
13. Exercise/Physical Fitness	4.0			1.1	52	4.7			.9	46	4.6			1.3	82	4.4			1.4	136
Exercise/Physical Fitness		4.0		1.1	52		4.7		.9	46		4.6		1.3	82		4.4		1.4	136
Getting exercise.			4.4	1.2	52			4.9	.8	46			4.7	1.3	81			4.5	1.5	134
Keeping physically fit.			3.7	1.1	52			4.6	1.0	46			4.6	1.3	81			4.4	1.3	136
14. Physical Rest	4.5			1.3	52	3.5			1.5	46	3.2			1.6	82	4.4			1.5	136
Physical Rest		4.5		1.3	52		3.5		1.5	46		3.2		1.6	82		4.4		1.5	136
Relaxing physically.			4.5	1.3	52			3.5	1.5	46			3.2	1.6	82			4.4	1.5	136
15. Escape Personal-Social Pressure	4.6			1.3	52	5.0			1.1	46	4.6			1.4	82	5.0			1.1	137
Tension Release		4.2		1.6	52		4.7		1.2	46		4.3		1.5	81		4.8		1.2	134
Releasing or reducing some built up tension.			4.2	1.6	52			4.7	1.2	46			4.3	1.5	81			4.8	1.2	134
Slow Down Mentally		4.2		1.5	52		4.7		1.4	46		4.3		1.7	81		4.8		1.2	135
Giving your mind a rest.			4.2	1.5	52			4.7	1.4	46			4.3	1.7	81			4.8	1.2	135
Escape Role Overloads		5.3		1.0	52		5.6		.7	46		5.1		1.2	81		5.3		.9	136
Getting away from the usual demands of life.			5.3	1.0	52			5.6	.7	46			5.1	1.2	81			5.3	.9	136
Escape Daily Routine		5.0		1.1	52		4.9		1.1	46		4.7		1.3	82		5.1		1.0	137
Having a change from your daily routine.			5.0	1.1	52			4.9	1.1	46			4.7	1.3	82			5.1	1.0	137
16. Escape Physical Pressure	4.4			1.4	52	5.0			1.1	46	4.6			1.4	82	4.5			1.3	137
Tranquility		4.7		1.2	52		5.1		.9	46		4.7		1.3	82		4.6		1.3	137
Experiencing tranquility.			4.5	1.3	52			4.9	1.1	46			4.8	1.4	82			4.6	1.4	135
Experiencing solitude.			4.3	1.4	52			4.8	1.2	46			4.1	1.6	81			3.8	1.6	132
Experiencing peace and calm.			5.4	.8	52			5.7	.5	45			5.4	1.0	80			5.4	.9	137
Seek Open Space		4.6		1.4	52		5.3		.8	45		5.0		1.3	82		4.8		1.2	133
Experiencing open space.			4.6	1.4	52			5.3	.8	45			5.0	1.3	82			4.8	1.2	133
Privacy		3.2		1.6	52		4.2		1.7	46		3.5		1.6	82		3.5		1.7	137
Feeling isolated.			3.5	1.7	50			4.5	1.5	45			3.6	1.7	82			3.6	1.7	135
Being alone.			3.0	1.5	52			3.9	1.9	46			3.3	1.6	81			3.3	1.8	133
Escape Crowds		4.8		1.3	52		5.4		.9	46		5.1		1.3	82		5.0		1.2	134
Being away from crowds of people.			4.8	1.3	52			5.4	.9	46			5.1	1.3	82			5.0	1.2	134
Escape Physical Stressors		4.5		1.3	52		5.0		1.3	46		4.7		1.4	81		4.9		1.2	135
Being away from noise back home.			4.5	1.3	52			5.0	1.3	46			4.7	1.4	81			4.9	1.2	135
17. Security	4.4			1.4	52	4.0			1.6	44	3.9			1.8	81	4.4			1.5	136
Social Security		4.4		1.4	52		4.0		1.6	44		3.9		1.8	81		4.4		1.5	136
Being near considerate people.			4.4	1.4	52			4.0	1.6	44			3.9	1.8	81			4.4	1.5	136
18. Escaping Family	1.8			1.3	51	2.7			1.6	46	2.0			1.4	82	2.2			1.5	134
Escaping Family		1.8		1.3	51		2.7		1.6	46		2.0		1.4	82		2.2		1.5	134
Being away from the family for awhile.			1.8	1.3	51			2.7	1.6	46			2.0	1.4	82			2.2	1.5	134
19. Temperature	3.2			1.7	50	2.2			1.4	45	2.7			1.6	79	3.4			1.7	130
Temperature		3.2		1.7	50		2.2		1.4	45		2.7		1.6	79		3.4		1.7	130
Having more agreeable temperatures.			3.2	1.7	50			2.2	1.4	45			2.7	1.6	79			3.4	1.7	130

[a]Means are based on responses to a six-point response format ranging from 6 (extremely important) to 1 (not important).

[b]Standard deviations for multiple-item scales are computed by averaging the standard deviation of the items within that scale. Standard deviations for multiple scale domains are computed by averaging the standard deviations of the scales within that domain.

APPENDIX E

SUMMER SNF MANAGEMENT ACTION AND CONDITION PREFERENCES

Table E-1. Management item means and standard deviations for respondents sampled in the Sierra National Forest grouped by their most important activity (Summer, 1979).

Possible Management Actions	Camping Near Auto (N=128)		Camping Away From Auto (N=115)[a]		Hiking (N=172)[a]		Fishing (N=254)[a]	
	Mean[b]	S.D.[c]	Mean[b]	S.D.[c]	Mean[b]	S.D.[c]	Mean[b]	S.D.[c]
Continue to emphasize the "pack out what you pack in" policy in backcountry areas	3.8	.9	3.9	.4	3.9	.8	3.7	1.1
Establish more distance between campground campsites	2.1	1.9	1.8	2.0	2.2	1.8	2.1	1.9
Provide limited facilities (toilets and tables) at dispersed camping sites along roads	2.1	1.9	1.6	1.9	1.7	1.9	1.9	2.1
Establish designated rustic (low level of development) camping sites in areas accessible by roads	2.2	1.9	1.6	2.3	1.7	2.0	1.9	2.1
Maintain trailless areas in which all travel must be cross country	1.1	2.1	2.4	2.0	2.4	1.8	1.5	2.3
Limit the number of people in the John Muir Wilderness at any one time for heavily used areas	1.3	2.1	2.2	2.1	2.2	2.1	1.2	2.4
Limit the number of people in the Kaiser Wilderness at any one time for heavily used areas	1.3	2.1	2.1	2.2	2.1	2.1	1.2	2.4
Construct more hiking trails in areas outside the John Muir and Kaiser Wildernesses	1.2	2.1	1.7	2.4	1.7	2.2	1.0	2.4
Limit the number of people in heavily used areas on the forest, outside the John Muir and Kaiser Wildernesses	1.0	2.3	2.0	2.2	1.8	2.1	1.1	2.5
Prohibit camping within 100 ft. of streams and lakes	1.1	2.9	1.9	2.9	2.0	2.7	.8	3.2
Provide more campgrounds	1.8	2.3	.2	2.7	0	2.4	1.0	2.6
Provide more picnic areas	.7	1.7	.3	2.0	.5	2.0	.6	2.3
Retain private recreation residences that are currently leased on National Forest land	1.1	2.1	.3	2.6	.4	2.5	.8	2.6
Provide showers and electricity in some campgrounds	1.0	2.8	-.4	2.7	-.3	2.8	.5	2.9
Construct more trails in the Kaiser Wilderness	0	1.9	-.2	2.6	-.1	2.5	0	2.3
Construct more trails in the John Muir Wilderness	.1	1.9	-.4	2.7	-.2	2.5	-.1	2.3

[a]Calculations for each management item are based on at least the number of respondents indicated by N.

[b]Means are based on responses to a nine-point response format ranging from +4 (very strongly favor) to -4 (very strongly oppose).

[c]Standard deviation (S.D.) is a measure of variation in the responses around the mean score.

Table E-2. Selected management item means and standard deviations for respondents sampled in the Sierra National Forest grouped by whether or not they have visited the John Muir Wilderness Area (Summer, 1979).

Possible Management Actions	Visited John Muir Wilderness?					
	Yes (N=533)[a]		No (N=279)[a]		Don't Know (N=109)[a]	
	Mean[b]	S.D.[c]	Mean[b]	S.D.[c]	Mean[b]	S.D.[c]
Maintain trailless areas in which all travel must be cross-country	1.9	2.3	1.5	2.3	1.0	2.1
Limit the number of people in the John Muir Wilderness at any one time for heavily used areas	1.7	2.4	1.4	2.2	1.2	2.0
Limit the number of people in heavily used areas on the forest, outside the John Muir and Kaiser Wilderness	1.4	2.5	1.1	2.4	1.3	2.1
Construct more trails in the John Muir Wilderness	-.2	2.5	-.1	2.1	.5	1.8

[a]Calculations for each management item are based on at least the number of respondents indicated by N.

[b]Means are based on responses to a nine-point response format ranging from +4 (very strongly favor) to -4 (very strongly oppose).

[c]Standard deviation (S.D.) is a measure of variation in the responses around the mean score.

Table E-3. Selected management item means and standard deviations for respondents sampled in the Sierra National Forest grouped by whether or not they have visited what is now the Kaiser Wilderness Area (Summer, 1979).

Possible Management Actions	Visited Kaiser Wilderness?					
	Yes (N=479)[a]		No (N=226)[a]		Don't Know (N=219)[a]	
	Mean[b]	S.D.[c]	Mean[b]	S.D.[c]	Mean[b]	S.D.[c]
Maintain trailless areas in which all travel must be cross-country	1.7	2.4	1.6	2.2	1.7	2.1
Limit the number of people in the Kaiser Wilderness at any one time for heavily used areas	1.6	2.4	1.5	2.0	1.4	2.2
Limit the number of people in heavily used areas on the forest, outside the John Muir and Kaiser Wildernesses	1.3	2.5	1.4	2.2	1.2	2.4
Construct more trails in the Kaiser Wilderness	-.1	2.6	0	2.1	.3	1.9

[a]Calculations for each management item are based on at least the number of respondents indicated by N.

[b]Means are based on responses to a nine-point response format ranging from +4 (very strongly favor) to -4 (very strongly oppose).

[c]Standard deviation (S.D.) is a measure of variation in the responses around the mean score.

Table E-4. Means and standard deviations on statements regarding the sampled respondents' visits to the Sierra National Forest, grouped by their most important activity (Summer, 1979).

Statements	Camp Near Auto (N=125)[a]		Camp Away From Auto (N=115)[a]		Hiking (N=177)[a]		Fishing (N=258)[a]	
	Mean[b]	S.D.[c]	Mean[b]	S.D.[c]	Mean[b]	S.D.[c]	Mean[b]	S.D.[c]
Commerical services (grocery stores, restaurants, etc.) were adequate to meet your needs	2.0	1.4	2.3	1.0	2.1	1.3	1.9	1.3
There were too many controls (regulations, signs, etc.) on your behavior by existing management actions.	-1.1	1,7	-1.1	1.7	-1.3	1.6	-.9	1.8
Vandalism or willful damage to facilities or resources was evident and reduced the quality of your recreation experience	.3	1.7	.3	1.9	0.0	1.7	.4	1.9
Traffic on many of the roads was too heavy and reduced the quality of your recreation	-.1	1.6	0.0	1.7	-.2	1.6	.1	1.8

[a]Calculations for each statement are based on at least the number of respondents indicated by N.

[b]Means are based on response to a seven-point response format ranging from +3 (strongly agree) to -3 (strongly disagree).

[c]Standard deviation (S.D.) is a measure of variation in the responses around the mean score.

Table E-5. Respondents' estimates of the maximum number of people per party that should be allowed in selected areas (Summer, 1979).

Number of People Per Party	John Muir Wilderness		Kaiser Wilderness		Non-Wilderness Backcountry		Huntington Lake Campgrounds	
	Percent[a]	Cumulative Percent	Percent[a]	Cumulative Percent	Percent[a]	Cumulative Percent	Percent[a]	Cumulative Percent
1	---	---	---	---	---	---	.2	.2
2	.3	.3	.4	.4	1.4	1.4	.5	.7
3	.7	1.0	.7	1.1	.7	2.1	.7	1.3
4	12.3	13.3	11.6	12.7	7.8	9.9	6.4	7.7
5	8.7	22.0	8.7	21.4	6.3	16.2	7.1	14.8
6	15.9	37.9	15.8	37.1	10.8	27.0	17.1	31.9
7	1.6	39.4	1.3	38.4	2.3	29.3	2.4	34.3
8	7.4	46.9	9.1	47.5	8.5	37.8	9.4	43.7
9	.5	47.4	.2	47.6	.3	38.2	.8	44.5
10	15.4	62.8	15.9	63.6	16.0	54.2	11.8	56.3
11	---	62.8	---	63.6	---	54.2	.3	56.6
12	4.0	66.8	3.6	67.2	5.1	59.2	4.0	60.7
13	1.2	68.0	1.1	68.3	.9	60.1	.5	61.2
14	.2	68.2	.5	68.8	.5	60.6	.2	61.3
15	2.6	70.8	2.4	71.2	2.8	63.4	2.5	63.9
16	.3	71.1	.5	71.7	.9	64.3	.3	64.2
17	---	71.1	---	71.7	.2	64.5	.2	64.4
18	.2	71.3	.2	71.9	.2	64.6	.2	64.5
20	3.3	74.6	3.8	75.7	4.0	68.6	3.5	68.1
23	---	74.6	---	75.7	---	68.6	.2	68.2
24	.2	74.8	---	75.7	---	68.6	---	68.2
25	1.0	75.8	.5	76.2	.5	69.1	1.7	69.9
>25	.8	76.6	.6	76.8	2.2	71.3	1.8	71.6
No Limit	23.4	100	23.2	100	28.7	100	28.4	100

[a]Percentage values are based on at least N=552 respondents.

Table E-6. Respondents' estimates of the maximum number of pack and saddle animals per party that should be allowed in selected areas (Summer, 1979).

Number of Pack and Saddle Animals Per Party	John Muir Wilderness		Kaiser Wilderness		Non-Wilderness Backcountry		Huntington Lake Campgrounds	
	Percent[a]	Cumulative Percent	Percent[a]	Cumulative Percent	Percent[a]	Cumulative Percent	Percent[a]	Cumulative Percent
0	8.2	8.2	7.4	7.4	6.5	6.5	21.9	21.9
1	4.2	12.4	4.3	11.8	3.6	10.1	2.5	24.4
2	9.1	21.5	8.7	20.5	6.1	16.2	3.6	28.1
3	4.2	25.7	4.5	25.0	4.7	20.9	2.7	30.7
4	6.8	32.5	6.9	31.9	6.3	27.2	2.7	33.4
5	7.2	39.6	7.2	39.1	4.7	31.9	3.1	36.5
6	8.6	48.2	8.3	47.5	6.8	38.7	4.8	41.2
7	1.6	49.7	1.6	49.1	.9	39.6	.8	42.0
8	5.8	55.5	5.4	54.5	7.4	47.0	3.6	45.6
9	.7	56.2	.7	55.3	.9	47.9	---	45.6
10	9.2	65.4	10.1	65.4	9.9	57.8	7.3	52.9
11	.3	65.8	.4	65.8	.4	58.2	.4	53.2
12	2.4	68.2	2.2	67.9	2.3	60.5	1.0	54.2
13	.7	68.9	.9	68.8	.4	60.9	.4	54.6
14	.7	69.6	.5	69.4	.2	61.1	.2	54.8
15	2.3	71.9	2.5	71.9	2.7	63.8	1.0	55.7
16	.5	72.4	.7	72.6	.5	64.3	---	55.7
17	.2	72.6	---	72.6	---	64.3	.2	55.9
18	.7	73.3	.7	73.4	.4	64.7	.2	56.1
19	---	73.3	---	73.4	.2	64.9	.2	56.3
20	2.3	75.6	2.2	75.5	2.7	67.6	2.7	59.0
24	---	75.6	---	75.5	.2	67.7	---	59.0
25	.5	76.1	.4	75.9	.2	67.9	.2	59.2
30	.2	76.3	---	75.9	.4	68.3	.6	59.7
32	.2	76.5	.2	76.1	---	68.3	.2	59.9
40	---	76.5	.2	76.3	.2	68.5	.2	60.1
>40	.3	76.8	.2	76.4	1.3	69.7	.4	60.5
No Limit	23.2	100	23.6	100	30.3	100	39.5	100

[a]Percentage values are based on at least N=524 respondents.

Table E-7. Respondents' estimates of the maximum number of vehicles per party that should be allowed in selected areas (Summer, 1979).

Number of Vehicles Per Party	Non-Wilderness Backcountry		Huntington Lake Campgrounds	
	Percent[a]	Cumulative Percent	Percent[a]	Cumulative Percent
0	13.8	13.8	3.2	3.2
1	16.4	30.3	18.6	21.9
2	23.7	54.0	32.3	54.1
3	8.4	62.4	9.0	63.1
4	3.4	65.8	4.3	67.4
5	3.9	69.7	2.9	70.3
6	.7	70.5	.5	70.8
7	.9	71.4	.7	71.5
8	.6	72.0	---	71.5
10	1.5	73.5	2.5	74.0
12	---	73.5	.4	74.4
14	.4	73.8	.4	74.7
15	---	73.8	.4	75.1
20	.6	74.4	.5	75.6
>20	.4	74.8	.6	76.2
No Limit	25.2	100.0	23.8	100.0

[a]Percentage values are based on at least N=535 respondents.

Table E-8. Respondents' estimates of the maximum number of days a party should be allowed to camp in any one area (Summer, 1979).

Total Days a Party is Allowed to Camp In Any One Area	John Muir Wilderness		Kaiser Wilderness		Non-Wilderness Backcountry		Huntington Lake Campgrounds	
	Percent [a]	Cumulative Percent[a]	Percent[a]	Cumulative Percent[a]	Percent[a]	Cumulative Percent[a]	Percent[a]	Cumulative Percent[a]
1	.6	.6	.6	.6	.5	.5	---	---
2	7.0	7.6	6.6	7.2	2.6	3.1	1.4	1.4
3	11.0	18.7	10.3	17.5	4.1	7.2	3.9	5.3
4	3.0	21.6	3.4	20.9	3.5	10.7	2.2	7.5
5	6.4	28.0	6.4	27.3	5.8	16.5	5.7	13.2
6	.6	28.6	.6	28.0	.5	17.0	.3	13.5
7	20.8	49.5	20.9	48.9	19.1	36.1	23.0	36.4
8	1.1	50.5	1.1	50.0	1.5	37.6	1.0	37.4
9	.8	51.3	.6	50.6	.3	37.9	.7	38.2
10	7.0	58.3	7.7	58.4	6.3	44.2	7.5	45.6
11	.3	58.6	.3	58.7	.5	44.6	.6	46.2
12	---	58.6	---	58.7	.3	45.0	.6	46.8
13	---	58.6	---	58.7	.2	45.1	---	---
14	17.9	76.5	17.2	75.9	29.1	74.2	34.7	81.5
15	1.1	77.6	1.4	77.3	2.0	76.1	2.2	83.6
16	---	77.6	---	77.3	---	76.1	.4	84.1
18	.3	77.9	.3	77.7	.3	76.5	.1	84.2
20	.8	78.7	.5	78.1	.6	77.1	.3	84.5
21	.6	79.3	.6	78.8	.9	78.0	1.0	85.5
>21	2.5	81.8	2.8	81.5	3.3	81.3	2.2	87.7
No Limit	18.2	100	18.5	100	18.7	100	12.2	100

[a]Percentage values are based on at least N=622 respondents.

APPENDIX F

CORRELATION AND RELIABILITY ANALYSES

CORRELATION AND RELIABILITY ANALYSES

Information in this appendix describes the results of two statistical analyses used to compare the REP's of Sierra users to the REP's of users from previously studied areas. The first statistical procedure utilizes a Pearson Product-Moment Correlation Coefficient to provide an indication of the overall strength of the relationship between the REP means from different studies. The second analysis technique uses Cronbach alphas to determine the consistency of the SNF REP scale and domain structures with the accepted or standard structures defined in past research.

Correlation of Past Data Sets With The Sierra Data

A correlation coefficient provides one measure of the strength and type of relationship between two variables. One way to determine the degree or similarity between recreationists visiting the SNF and users of previously studied areas is to correlate their means on the REP scales. Since a correlation coefficient of +1 represents a perfect positive relationship between two variables and a value of 0 indicates no relationship between the variables, the closer the correlation value is to +1 the more similar the two areas are in the way recreationists responded to the recreation experience items in each scale. All correlation values in Tables F-1 to F-4 reflect the correlation of the REP means for Sierra users to the REP means for users of the listed area by each common most important activity (i.e., correlation of the means from text Tables 54-62).

Correlations of winter users of the SNF to winter users of other areas indicate there is a strong relationship between most of the REP response patterns. Correlations from the adds-detracts REP response format for cross-country skiers are in Table F-1. All correlations of cross-country skiers from the SNF to those from the ARNF and WRNF are high, indicating a strong relationship. The correlation coefficients for downhill skiers (importance questionnaire format) shown in Table F-2 are not as consistent as the cross-country skier values. Downhill skiers from Lake Tahoe ski areas correlate highly with Sierra downhill skiers, but the .38 correlation coefficient between Pennsylvania and SNF downhill skiers is relatively weak.

Correlations of the REP scale means (adds-detracts questionnaire format) for summer recreationists visiting the SNF and users of the WRNF, Shoshone, SNP, and SRWA are shown in Table F-3. Strong relationships or response patterns between the correlated data sets are evident from the high correlation values . Coefficients for the hiker groups are the highest as exhibited by an overall average correlation for that column of .92. The lowest recorded value in the table is a .79 between fishermen from the Shoshone and SNF areas. Comparable correlations for recreationists receiving the importance format are listed in Table F-4. Although these values are somewhat lower, they are consistent and high enough to indicate a meaningful relationship between the areas. As opposed to the Pennsylvania correlation for downhill skiers in Table F-2, Pennsylvania recreationists in other activities relate strongly to the SNF users.

Although the correlation coefficient is by no means a comprehensive measure of the relationship between the REP's of users from two different areas, it is a good statistic for identifying similar response patterns.

Table F-1. Correlation of REP scale means (adds-detracts format) of respondents sampled in the Sierra National Forest (Winter, 1979) to respondents sampled in previous studies, grouped by most important activity.

Correlations[a]	Most Important Activity Group Cross-Country Skiers
Arapaho-Roosevelt correlated to Sierra	.88
White River correlated to Sierra	.93

[a]Correlations between the study areas are Pearson Product-Moment Correlation Coefficients.

Table F-2. Correlation of REP scale means (importance format) of respondents sampled in the Sierra N. F. (Winter, 1979) to respondents sampled in previous studies, grouped by most important activity.

Correlations[a]	Most Important Activity Group Downhill Skier
Northeastern Pennsylvania correlated to Sierra	.38
Lake Tahoe correlated to Sierra	.81

[a]Correlations between study areas are Pearson Product-Moment Correlation Coefficients.

Table F-3. Correlation of REP scale means (adds-detracts format) of respondents sampled in the Sierra National Forest (Summer, 1979) to respondents sampled in previous studies, grouped by most important activity.

Correlations[a]	Most Important Activity Groups			
	Hikers	Camping Away from Automobile	Camping Near Automobile	Fishing
White River correlated to Sierra	.95	.91	.87	.92
Shoshone correlated to Sierra	.87	---	.87	.79
Shenandoah correlated to Sierra	.93	.89	---	---
Shining Rock correlated to Sierra	.94	.94	---	---

[a]Correlations between the study areas are Pearson Product-Moment Correlation Coefficients.

Table F-4. Correlation of REP scale means (importance format) of respondents sampled in the Sierra N. F. (Summer, 1979) to respondents sampled in previous studies, grouped by most important activity.

Correlations[a]	Most Important Activity Groups		
	Hikers	Camping Near the Automobile	Fishing
Northeastern Pennsylvania correlated to Sierra	.74	.85	.83
Michigan Huron River correlated to Sierra	--	.84	.73

[a]Correlations between the study areas are Pearson Product-Moment Correlation Coefficients.

The data shown in Tables F-1 to F-4 support the conclusion that there is a strong pattern of similarity between the REP responses given by Sierra users and responses of recreationists studied in previous research.

Reliability Analysis

This section compares the relative strength of the REP scales and domains of the SNF winter and summer recreationists to the same dimensional structures defined in previous research. The Cronbach alpha (α) is the test statistic used in this comparison. Scales and domains meeting the designated minimum criteria of an alpha $\geq$ 0.6 are considered to confirm the structures recommended in previous studies. Refer to the Methods Section (Comparative Analysis) if further information is desired concerning this procedure. Alpha reliabilities for the winter data are documented in Appendix B, Tables B-1 (adds-detracts format) and B-2 (importance format). Similar documentation for the summer data is shown in Appendix D, Tables D-1 (adds-detracts format) and D-2 (importance format). Although analysis of the winter and summer data sets were conducted independently, the results were consistent enough to allow simultaneous discussion. Where necessary, the appropriate winter and summer values will be labelled.

Twelve of the 26 scales incorporated on the SNF questionnaires have multiple items describing the same REP concept. Alpha reliability values for 11 of the 12 scales are all above 0.6 (adds-detracts format). Only the reliability value for the Privacy scale is below 0.6 at .59 (winter study) and .53 (summer study). Although these values are below 0.6, the corresponding α values from the importance format for the Privacy scale are strong ($\geq$ .68) for both the winter and summer data sets. Therefore, the SNF winter and summer scales are considered consistent with previously defined scale structures by surpassing the recommended minimum α level.

Reliability analysis was also performed on the REP domain structures. Only one of the 12 multiple item domains do not have an alpha value greater than 0.6. The winter and summer alphas for the Risk Taking domain (adds-detracts format) are .17 and .16 respectively. Comparable data from the importance format for both the winter and summer studies also show alpha values below the minimum levels. While data from this study are not sufficient to recommend changes in the structure of the Risk Taking domain, some previous research supports a reinvestigation of this domain. A study of eastern wilderness users (Roggenbuck, 1979) supports the reliability inconsistency found in the Sierra data. Through extensive analysis, Roggenbuck recommended splitting the Risk Taking domain into the three component scales, Risk Taking, Risk Moderation, and Risk Avoidance. A study of three wilderness areas in Colorado (Brown and Haas, 1980) separated the Risk Taking domain into two domains, Risk Taking and Avoiding Risks. They did not explicitly state the problem with the recommended domain structure, but obviously felt the data supported a two domain structure. The Risk Taking domain reliability value in a study on the Shoshone National Forest (Manfredo, 1979) was .59. Although this alpha value is not low enough to question the domain structure, one disconcerting factor is that the alpha values for the individual scales were all higher than the overall domain alpha. A reduction in the reliability through aggregation is one indication that the aggregated structure is not very strong or stable.

Although the Risk Taking domain shows low alpha reliability values for the Sierra data sets, it is our opinion that the overall clustering of the Sierra REP items into scales and domains strongly confirm the recommended structures proposed by Driver. Since recent research in other areas of

the country has identified similar inconsistencies in the Risk Taking domain, the reliability values from the Sierra studies actually support those findings, and do not reflect adversely on the overall Sierra scale and domain structures.

APPENDIX G

RECREATION OPPORTUNITY SPECTRUM OPINIONS
(Winter and Summer)

Table G-1. Area characteristic scale and item means and standard deviations for respondents sampled in the Sierra National Forest (Winter, 1979).[a]

Area Characteristic Scales and Items[b]	Mean[c]	Standard Deviation[d]	Number of Respondents	Alpha[e]
1. Size of area	3.5	1.7	311	-
Large/small	3.5	1.7	311	
2. Amount of regulation and development	3.8	1.8	391	.61
Had no facilities for visitor use/had many facilities for visitor use	3.5	1.7	398	
Management actions and controls were not apparent/management actions and controls were very apparent	4.1	1.9	397	
3. Opportunities for challenge and use of outdoor skills	2.8	1.5	396	.79
Offered many opportunities for outdoor challenges/offered no opportunities for outdoor challenges	2.8	1.4	402	
Offered many opportunities to use outdoor skills/offered no opportunities to use outdoor skills	2.8	1.5	398	
4. Remoteness of area	4.4	2.0	401	.78
Sights and sounds of man were practically non-existent/sights and sounds of man were quite evident	4.6	2.0	403	
Had no other users/had many other users	4.7	1.9	400	
Provided good opportunity to realize a sense of remoteness or isolation from civilization/provided no opportunity to realize a sense of remoteness or isolation from civilization	3.7	1.9	398	
No motorized vehicles were present/many motorized vehicles were present	4.8	2.2	398	

[a]The following two items from the questionnaire were not included in this analysis: (1) Demanded much physical effort to reach your destination/demanded little physical effort to reach your destination, and (2) Provided good opportunity to get away from roads with motorized vehicles/provided no opportunity to get away from roads with motorized vehicles.

[b]The area characteristics (scales) are described by a series of items, each having two labelled end-points (separated by a slash above). Respondents checked one of seven blank spaces between the end-points according to their perception of the area where they recreated (See Appendix A, Figure A-2 (Winter Yellow), Question V).

[c]Means are based on responses to a seven-point response format.

[d]Standard deviations for multiple-item scales are computed by averaging the standard deviations of the items within that scale.

[e]Alpha reliability for scales containing more than one item using the Cronbach alpha computation for internal consistency.

Table G-2. Preferences for recreation setting attributes of respondents sampled in the Sierra National Forest (Winter, 1979).

Recreation Settings	Like Percent[a]	Dislike Percent[a]	Unimportant Percent[a]	Number of Respondents
Setting 1 - Primitive				
Remote, usually greater than 3 miles from roads	49	17	34	154
Unmodified natural environment over 5,000 acres	71	7	22	153
Very little concentration or evidence of other users	72	5	23	155
Very low user density providing very few contacts with other users	61	11	28	155
Managed without on-site regulation of users	48	31	21	150
Free of most facilities	47	31	21	154
Free of any resource uses which significantly disturb the natural environment	70	10	20	152
Free of motorized use	59	20	21	154
Setting 2 - Semi-Primitive Non Motorized				
Moderately remote, usually greater than 1/2 mile from roads	67	15	18	148
Predominately unmodified natural environment of over 2,500 acres	68	11	21	145
Little, but some concentration or evidence of other users	69	10	22	148
Low user density providing few, but some, contacts with other users	69	12	19	147
Managed with minimum on-site regulation of users	68	13	19	144
A few facilities are provided for resource protection and safety of users	79	10	12	146
Free of most resource uses which significantly disturb the natural environment	76	9	15	143
Free of motorized use	59	20	22	147
Setting 3 - Semi-Primitive Motorized				
Moderately remote, usually greater than 1/2 mile from roads	66	13	21	140
Predominately unmodified natural environment of over 2,500 acres	67	11	22	139
Little, but some concentration or evidence of other users	65	10	26	141
Low user density providing few, but some, contacts with other users	66	13	21	139
Managed with minimum on-site regulation of users	67	13	20	137
A few facilities are provided for resource protection and safety of users	75	11	14	138
Free of most resource uses which significantly disturb the natural environment	71	12	18	139
Motorized use is allowed but generally restricted to 4-wheel drive vehicles and off-road motorcycles	23	59	18	142
Setting 4 - Roaded Natural				
Some of area remote, some along roads	77	13	10	142
Environment appears to be generally natural	87	8	5	143
Moderate concentration of users occurs and there are noticeable evidences of other users	44	34	22	144
Contacts with other users are expected, but not constant	66	13	21	144
Managed with on-site regulation of users	49	29	22	143
Rustic facilities available for resource protection and convenience and safety of users	75	12	13	143
Resource uses like timbering and grazing might be evident	30	44	28	142
Automobile use is allowed and common	35	45	19	144
Setting 5 - Semi-Rural				
Area is along roads	34	54	13	143
Environment is substantially modified from natural with some urban type developments	15	77	8	145
Concentration of users is high and there are noticeable evidences of other users	15	74	11	143
Contacts with other users are frequent	17	66	17	145
Managed with on-site regulations of users	42	42	16	143
Modern high standard, and generally large facilities are provided for users	31	58	11	144
Resource uses allowed include timbering, grazing, water development and tourist and shopping areas	21	67	12	144
Automobile use is allowed and common	33	49	18	145

[a]Percentages are based on the number of respondents answering each item describing a characteristic of the recreation setting.

Table G-3. Preferences for amount of motorized use permitted when participating in most important activities of respondents sampled in the Sierra National Forest (Summer, 1979).

Amount of Motorized Use Permitted	All Users (N=934)[a] Percent	Camping Near Auto (N=126)[a] Percent	Camping Away From Auto (N=114)[a] Percent	Hiking (N=173)[a] Percent	Fishing (N=254)[a] Percent
Motor vehicles are permitted anywhere in the area	1	2	0	0	2
Motor vehicles are allowed on main roads and many designated backcountry trails and roads	18	21	8	2	26
Motor vehicles are allowed on main roads and on a few designated backcountry trails and roads	41	48	26	31	46
Motor vehicles are permitted only on main roads in the area	30	27	38	44	22
Motor vehicles are not permitted	10	2	28	23	4

[a]Percentage values are based on the number of respondents indicated by N.

Table G-4. Preferences for density of users on trails when participating in most important activities of respondents sampled in the Sierra National Forest (Summer, 1979).

Density of Users on Trails	All Users (N=896)[a] Percent	Camping Near Auto (N=118)[a] Percent	Camping Away From Auto (N=115)[a] Percent	Hiking (N=173)[a] Percent	Fishing (N=242)[a] Percent
Extremely high number of contacts (over 20 parties/day) with other users on trails	3	3	1	0	4
High number of contacts (11-20 parties/day) on trails	7	9	4	5	5
Moderate number of contacts (5-10 parties/day) on trails	40	55	23	34	44
Low number of contacts (2-4 parties/ day) on trails	30	23	36	33	34
Very low number of contacts (less than 2 parties/day) with other users on trails	20	10	37	29	14

[a]Percentage values are based on the number of respondents indicated by N.

Table G-5. Preferences for density of users off trails when participating in most important activities of respondents sampled in the Sierra National Forest (Summer, 1979).

Density of Users Off Trails; At Picnicking, Camping and Other Areas	All Users (N=905)[a] Percent	Camping Near Auto (N=121)[a] Percent	Camping Away From Auto (N=115)[a] Percent	Hiking (N=172)[a] Percent	Fishing (N=247)[a] Percent
Extremely high number of contacts (over 20 parties/day) with other users off trails	5	8	4	2	4
High number of contacts (11-20 parties/ day) with users off trails	9	9	6	11	9
Moderate number of contacts (5-10 parties/day) with users off trails	45	55	29	36	49
Low number of contacts (2-4 parties/ day) with users off trails	24	17	29	27	23
Very low number of contacts (less than 2 parties/day) with other users off trails	18	10	32	24	16

[a]Percentage values are based on the number of respondents indicated by N.

Table G-6. Preferences for evidence of past users when participating in most important activities of respondents sampled in the Sierra National Forest (Summer, 1979).

Evidence of Past Users	All Users (N=926)[a] Percent	Camping Near Auto (N=124)[a] Percent	Camping Away From Auto (N=115)[a] Percent	Hiking (N=173)[a] Percent	Fishing (N=253)[a] Percent
Evidence of past users is just about everywhere	22	19	15	13	31
Occasional evidence of past users is found	37	40	34	28	38
Evidence of past users is hardly ever found	41	41	51	60	31

[a]Percentage values are based on the number of respondents indicated by N.

Table G-7. Preferences for remoteness when participating in most important activities of respondents sampled in the Sierra National Forest (Summer, 1979).

Remoteness	All Users (N=910)[a] Percent	Camping Near Auto (N=123)[a] Percent	Camping Away From Auto (N=114)[a] Percent	Hiking (N=173)[a] Percent	Fishing (N=247)[a] Percent
All of the area is near developed roads	6	11	2	1	9
Most of the area is near developed roads, but a little of it is remote	25	37	11	10	29
Most of the area is at least ½ mile from developed roads, but a little of it is near developed roads	35	38	23	32	37
Nearly all the area is remote; there are a few developed roads which are far apart	34	14	65	57	25

[a]Percentage values are based on the number of respondents indicated by N.

Table G-8. Preferences for the natural environment when participating in most important activities of respondents sampled in the Sierra National Forest (Summer, 1979).

Natural Environment	All Users (N=912)[a] Percent	Camping Near Auto (N=123)[a] Percent	Camping Away From Auto (N=113)[a] Percent	Hiking (N=173)[a] Percent	Fishing (N=248)[a] Percent
Environment is highly modified from natural by human developments	3	2	2	3	4
Environment is moderately modified from natural by human developments	29	35	14	12	39
Environment is predominantly unmodified from natural	38	50	28	29	38
Environment is unmodified by man except for foot trails	30	14	55	56	20

[a]Percentage values are based on the number of respondents indicated by N.

Table G-9. Preferences for control or regulation of users when participating in most important activities of respondents sampled in the Sierra National Forest (Summer, 1979).

Control or Regulation of Users	All Users (N=916)[a] Percent	Camping Near Auto (N=122)[a] Percent	Camping Away From Auto (N=114)[a] Percent	Hiking (N=172)[a] Percent	Fishing (N=254)[a] Percent
Managed with high degree of control or regulation of users	18	16	19	19	19
Managed with moderate control or regulation of users	61	70	57	54	60
Managed with little control or regulation of users	19	12	21	23	19
Managed without any control or regulation of users	3	2	3	4	2

[a]Percentage values are based on the number of respondents indicated by N in all users and each most important activity group, respectively.

Table G-10. Preferences for facilities when participating in most important activities of respondents sampled in the Sierra National Forest (Summer, 1979).

Facilities	All Users (N=914)[a] Percent	Camping Near Auto (N=124)[a] Percent	Camping Away From Auto (N=114)[a] Percent	Hiking (N=172)[a] Percent	Fishing (N=252)[a] Percent
Many modern, high standard and generally large facilities are provided for users	4	5	2	1	5
Some, but not many, modern and high standard facilities are provided	27	33	18	16	30
Several rustic facilities are provided but no modern, high standard ones	31	41	17	19	39
Only a very few rustic facilities are provided	23	19	25	34	20
Area has no developed facilities	14	2	38	29	7

[a]Percentage values are based on the number of respondents indicated by N.

Table G-11. Preferences for other resource uses when participating in most important activities of respondents sampled in the Sierra National Forest (Summer, 1979).

Other Resource Uses	All Users (N=907)[a] Percent	Camping Near Auto (N=119)[a] Percent	Camping Away From Auto (N=114)[a] Percent	Hiking (N=170)[a] Percent	Fishing (N=250)[a] Percent
Resource uses (including timbering, grazing, mineral and water developments) are common	15	9	6	9	20
Resource uses like timbering and grazing are evident but are not common	26	33	11	16	30
Resource uses like timbering and grazing do exist but are not very evident	40	49	44	41	37
There is no evidence of other resource uses	20	9	39	34	12

[a]Percentage values are based on the number of respondents indicated by N.

APPENDIX H

SUMMARY OF SNF USE DATA

I. INTRODUCTION

Purpose

This report summarizes results of one part (exit interview phase) of an overall recreation research effort between the Sierra National Forest, the Rocky Mountain Forest and Range Experiment Station, and Colorado State University. The primary goal of the cooperative research was to identify and quantify the recreation related experiences of Sierra National Forest users. One sub-objective of that study was to describe the recreation use characteristics of winter and summer Sierra recreationists. Specifically, this report summarizes recreation use data provided by respondents sampled in the Sierra National Forest during the winter (mid-February to May) and summer (June to September) of 1979.

Study Area

A part of the Sierra National Forest (SNF) was selected as the study site for the winter/summer research. The forest is located just south of Yosemite National Park approximately 50 miles east of Fresno in central California. The study area is bordered on the north by Yosemite and the Inyo National Forest; by the Inyo and Kings Canyon National Park on the east; and by Sequoia National Forest to the south. The western boundary of the study area follows a line north from Pine Flat Reservoir through Auberry and Northfork to Bass Lake. Within this area, the research focused primarily on those recreationists who exited the study area via State Highway 168 near Shaver Lake and the Dinkey Creek road south of Shaver Lake. Therefore, most of the research effort was concentrated in the Pineridge and Kings River Ranger Districts.

Figure 1 shows a map of the study area. With input from USFS managers, the study area was divided into zones (1-28) which facilitated the calculation of use statistics and the determination of the distribution and types of recreation use. Figure 2 shows the location of the interview stations. The areas designated by an "X" were used as interview areas for the winter research. The summer interview stations are represented as circles. An "X" with a circle around it designates an interview site that was used for both the winter and summer field research.

Methods

An exit interview procedure, developed by Driver and Brown during previous research in Colorado, was used to collect a representative sample of names and addresses of Sierra recreationists to build a sample frame for the behavioral research. This field contact also was used to collect use information concerning primary recreation activity, and where and how long the respondents had recreated in the study area. The exit interview procedure was designed to impact little of the recreation users' time during their visit to the SNF.

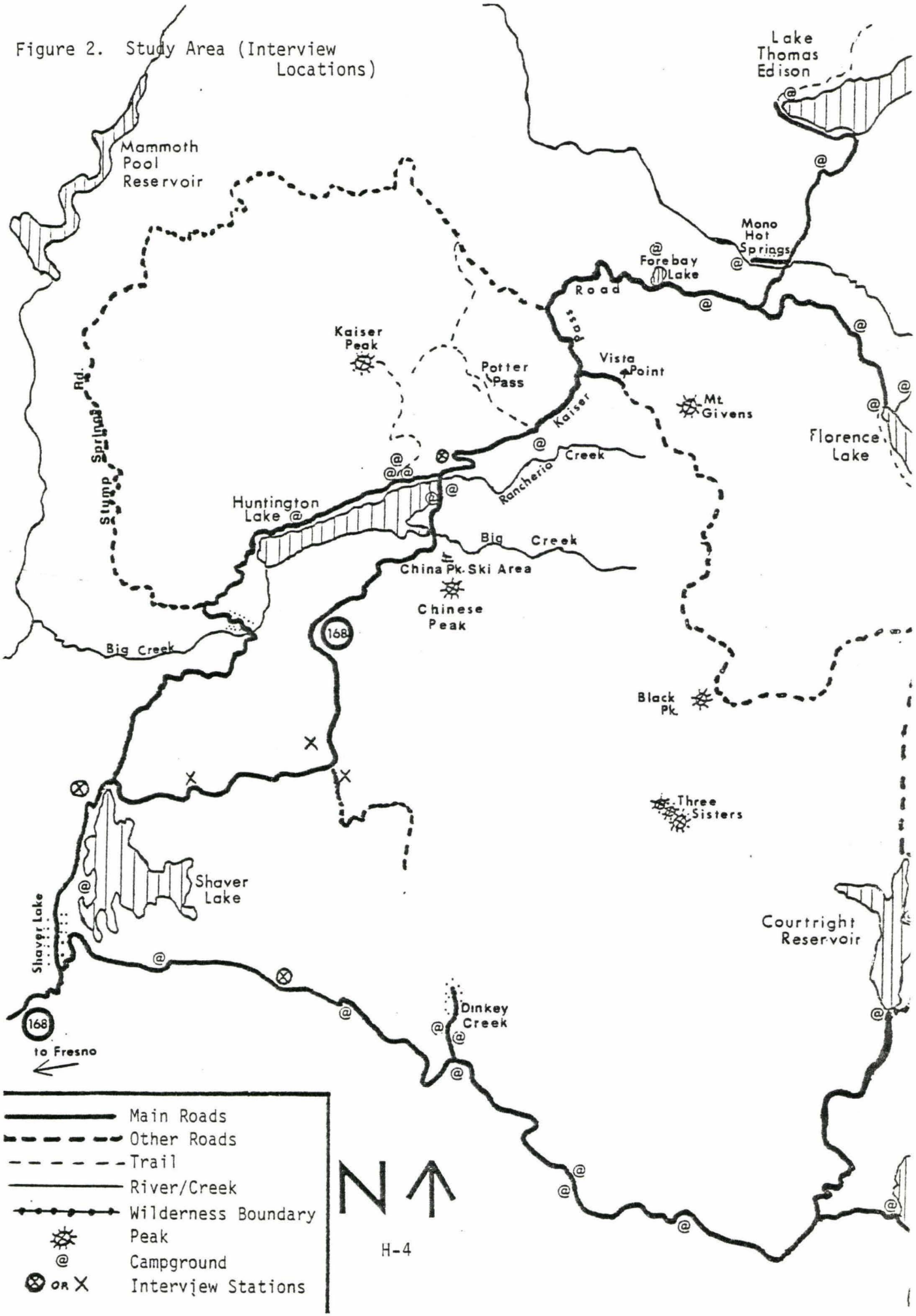
Exit Interview Procedures

The procedures for contacting SNF recreationists utilized an interview technique pilot tested in various recreation environments over the past three years. That technique requires contacting recreationists at interview locations as they are leaving the study area. Those locations were either trailheads, parking lots, or along roadsides as illustrated in the Figure 2 map of the study area. Most of the front-end interviewing was done along roadsides in this study.

Vehicles were stopped for interviewing only when the interviewer had completed the previous interview and could safely extract a vehicle from

Figure 1. Study Area Map.

Figure 2. Study Area (Interview Locations)



the normal traffic flow. Once a vehicle was stopped, the interviewer proceeded with the interview according to a predetermined set of decision rules defining the questioning procedure.[1] The interviewer approached and questioned either the driver or passenger based on a systematic routine for identifying the interviewee, and conducted the interview while the respondent remained in the vehicle. The reason for shifting the interview from driver to passenger was to obtain a more representative list of area users. The drivers exiting recreation areas tend to be males and heads of households. Because our interests are in the opinions and preferences of other users as well, a practical compromise for obtaining a representative sample was to systematically shift from driver to passenger, etc. The interviewee was asked for his/her cooperation concerning participation in the study and in supplying names and addresses for follow-up questionnaires. Any people refusing to participate were thanked for their time and allowed to proceed. The average total interview time was approximately two minutes.

Sampling Design

The sampling scheme adopted for the winter/summer research consisted of randomly selecting a sample of recreation users from the total population of recreation enthusiasts participating in recreation activities in the study area during the sampling period. The sample design could be described as a stratified random sample clustered by days. A stratification structure partitions a target population into a number of homogeneous groups. In this study, each interview station was a stratum. In addition, another stratification structure was used to delineate the weekend, weekday, and holiday differences. The size of sample selected from each stratum was determined

[1]For more details, refer to the study plan dated May, 1979.

by the total population (in this case, vehicles or parties passing by the interview station) of that stratum. Therefore, a scheme utilizing the concept of sampling proportional to use was used to sample each stratum by assigning the appropriate number of interview periods to each station according to the amount of use at that station. In addition to a stratification structure, the sample was divided further into clusters comprised of days. Each cluster consisted of a day, with the elements of that cluster defined as the recreation population exiting the study area on that day. A sample of clusters was taken from the whole sampling period by selecting specific sampling dates. Once the sample of clusters was selected, the actual interview time period within each cluster represented a subsample of the elements of that cluster.

The sampling scheme and the use statistics generated from the survey were limited to the extent that the sample sizes selected for each sampling period could not be estimated from population variance estimates for the variables included in the study. Sample sizes can be calculated for surveys in areas where previous studies have defined, measured, and produced population variance estimates of the same variables to be quantified in the new study. Since data for specific variables needed to produce variance estimates were not available for the study area selected, sample size estimates determined for this study were primarily a function of vehicular volume estimates from the California Department of Transportation, FS use estimates, budgetary constraints, the judgment of research personnel, and RMS statisticians advising the study. Further studies will benefit from variance estimates generated ex post facto from this study.

Sampling Schedule. The sampling schedules for both the winter and summer studies were designed to obtain a representative sample of recreation users throughout the sampling period.[2] The roadside interviewing at traffic stop and on-site locations was conducted in two three-hour blocks during each selected sampling day. The starting time of each three-hour interview block was varied for each station throughout the sampling period to cover the full range of time during which recreationists exited the study area. These time periods were equally distributed for each station in the study area.

The sampling period for this study extended from the middle of February to early September. This period was divided into two sampling periods corresponding to winter and summer recreation participation in the study area. The winter and summer interview locations and times are each discussed below.

The interviewing during the winter occurred at primarily five interview locations (Table 1). A sixth interview location, Dinkey Creek, was initially identified as an interview site, but was later dropped from the sampling schedule when little recreation use was observed. On-site interviewing at Eastwood, Tamarack Mountain and Ridge, and Ely Mountain was all trailhead and parking lot interviewing, due to the concentrated recreation use at those locations. More systematic sampling occurred at the Shaver Dam site on State Highway 168, where all the interviews involved stopping traffic. In addition to the interview locations, Table 1 also shows the time the interviewing started and total hours of interviewing for each day.

---

[2]The sampling period in the SNF was from mid-February to September, 1979. During that time period California service stations had a limited and variable supply of gasoline. While we are reasonably certain that our survey produced a representative sample of SNF users during the sampling period in 1979, we cannot be certain that 1979 was a representative year to sample SNF recreationists.

Table 1. Winter interview schedule, Sierra National Forest (1979).

Date	Interview Station[a]	Starting Time	Hours Interviewed
February			
18	TR	1030	6 1/2
19	E	1030	2
	EM	1330	1/2
23	TR	1400	3
	TM	1400	3
	E	1100	3
24	DC	1000	6 1/2
25	TM	1030	6
26	TR	1100	2 1/2
	E	1100	1
March			
1	TM	1130	2 1/2
2	TR	1330	2 1/2
	TM	1330	2 1/2
	E	1000	2
3	TR	1030	6 1/2
4	TR	1330	1/2
	E	1030	6
	EM	1400	1/2
9	TR	1530	1
	TM	1230	3
10	TR	1030	6
	TM	1030	6
11	EM	1030	6
	E	1130	3 1/2
	TM	1500	1 1/2
12	TM	1000	4
15	TR	1100	1 1/2
16	TR	1230	3
	E	1030	2
17	E	1030	6 1/2
18	TR	1100	6
23	SD	1300	3
24	SD	1100	5
25	SD	1100	7
30	SD	1000	4
31	TR	0900	4
	TR	1630	2
	TM	1330	4
	E	0900	4 1/2
	EM	1400	2

Table 1. Continued.

Date	Interview Station[a]	Starting Time	Hours Interviewed
April			
1	SD	0900	9
5	SD	0900	5 1/2
6	SD	0900	4
7	SD	1000	8 1/2
8	TR	1430	3 1/2
	TM	1000	4
	E	1430	3 1/2
	EM	1030	4
13	SD	1000	7 1/2
14	TR	1430	3 1/2
	TM	1200	2
	E	1430	3 1/2
	EM	1000	4
15	SD	0900	9 1/2
16	SD	1000	7 1/2
20	SD	1000	7 1/2
21	SD	0900	9 1/2
22	TR	1430	3 1/2
	TM	1000	4
	E	1430	3 1/2
23	SD	1000	7 1/2
26	SD	1000	4 1/2
27	SD	1000	7 1/2
28	TR	1000	4
	TM	1430	2 1/2
	E	1000	7 1/2
29	SD	0930	9

[a]E - Eastwood
EM - Ely Mountain
DC - Dinkey Creek
TM - Tamarack Mountain
TR - Tamarack Ridge
SD - Shaver Dam

A similar schedule for the summer sampling period is shown in Table 2. All exit interviewing conducted during the summer involved stopping traffic, since recreation use during the summer was not as site or area specific as winter use, and recreationists tended to disperse more. The three major view stations were Shaver Dam, Kaiser Road, and Dinkey Creek. Interviewing at a fourth summer location, Bass Lake, was initiated because of specific information needs expressed by FS managers. The location of the Bass Lake area outside the main study required a different sampling technique, "grab sampling", to acquire information from recreation users. Since the only objective for sampling Bass Lake users was to identify their recreation experience preferences, and that area was located outside the main study area, use data was not calculated for those users. The "grab sampling" technique and the recreation experience preferences of Bass Lake users are described in more detail in a separate report summarizing that component of the overall study.

Questionnaire

As users were contacted, a short, one-page questionnaire (exit interview form)[3] was used to record their responses. The respondents were first questioned as to whether or not they were primarily on a recreation excursion. Respondents not on a recreation trip were thanked for their time and directed back to the highway.

For those recreating in the study area, information was obtained concerning most important recreation activity, location of participation, time spent in study area zones, and number of previous visits to the area in the past 12 months, as well as names and addresses, including zip codes. Observations

[3]Exhibit A, Figure A-1.

Table 2. Summer interview schedule, Sierra National Forest (1979).

Date	Interview Station[a]	Starting Time	Hours Interviewed
May			
5	DC	1100	8
20	DC	1100	7 1/2
26	DC	1130	7 1/2
	KR	1500	4
27	KR	1030	8
	DC	1130	7 1/2
28	SD	1100	8 1/2
June			
2	DC	0900	7 1/2
3	SD	1130	4 1/2
8	KR	1000	5 1/2
	DC	1000	5 1/2
9	DC	1100	6
10	SD	1200	5 1/2
14	DC	1200	4 1/2
15	KR	1230	4
	DC	1100	6 1/2
16	KR	1100	6 1/2
19	KR	0900	6 1/2
20	DC	1130	6
21	DC	1100	6 1/2
	KR	1100	6 1/2
22	SD	0930	6
23	KR	1100	6 1/2
	DC	1100	6 1/2
24	SD	0930	6
29	KR	0900	6 1/2
	DC	1100	6 1/2
30	KR	1130	6
July			
1	KR	0915	6 1/2
4	KR	0900	6
11	KR	1100	6 1/2
12	DC	1100	6 1/2
13	BL	1200	4 1/2
14	BL	1200	6 1/2
15	BL	1000	6 1/2
16	SD	0900	6 1/2
17	SD	1300	5 1/2
18	DC	1300	3
24	SD	1145	6 1/2
25	KR	1030	6 1/2
26	SD	0900	6
27	DC	0900	6
28	SD	0900	6
29	KR	0830	6 1/2
30	SD	1030	4 1/2
31	DC	0900	6 1/2

Table 2. Continued.

Date	Interview Station[a]	Starting Time	Hours Interviewed
August			
5	DC	1030	4 1/2
	SD	1100	6 1/2
6	SD	1100	6 1/2
	DC	0830	7
7	SD	0900	6 1/2
10	DC	0830	7
11	SD	0900	6 1/2
12	DC	0830	6 1/2
15	KR	1100	3
16	KR	0900	6 1/2
17	BL	1030	5 1/2
18	BL	1000	6 1/2
19	BL	1030	6
20	KR	0900	6 1/2
21	KR	0900	6 1/2
24	KR	1130	6 1/2
25	SD	0900	5 1/2
26	DC	0830	6 1/2
27	KR	1000	5
28	KR	1100	6 1/2
31	SD	0900	6
September			
2	SD	0930	6
3	KR	1100	6
4	SD	0930	4 1/2

[a]BL - Bass Lake
DC --Dinkey Creek
KR - Kaiser Road
SD - Shaver Dam

also were made of the type of vehicle, and number of people in the party and in the vehicle.

Analysis. Analysis of the exit interview questionnaire was straightforward. The data was transferred from the questionnaires to computer cards by keypunching, and summary statistics for each statement were generated using the Statistical Package for the Social Sciences (SPSS).[4] Addresses were transferred to computer cards so that gummed address labels could be produced by the computer. The names and addresses were utilized for the behavioral component of the research as a sample frame for mail questionnaires.

Although the major function of the exit interviewing was to obtain a representative sample of names and addresses from recreation users, other information recorded on the questionnaire is useful for planning and management. Summary statistics and frequency compilations developed from the exit interview form and presented here include:

1. Summary statistics describing the interviewing at each winter and summer interview station.
2. Average size of party and number of people per vehicle.
3. Summary of the most important activity indicated by the respondents.
4. Primary use zones for the most important activity.
5. Average length of stay for recreationists in different zones and participating in different most important activities.

---

[4]Nie, N.H., C.H. Hull, J.G. Jenkins, K. Steinbrenner, and D.H. Bent. 1975. Statistical Package for the Social Sciences, 2nd ed. 675 pp. McGraw-Hill Book Co., New York, N.Y.

II. RESULTS

Winter Results

Table 3 indicates the number of winter front-end interviews obtained at each interview station. In total there were 939 recreation interviews conducted during the winter of 1979.

Interviewers recorded the type of vehicle each respondent was driving or riding in (Table 4). Over half of the respondents were in passenger cars.

Table 5 presents information on the size of the respondent's recreation party. Forty-two percent of all respondents came with only one other person. Only 19 percent of the respondents came in groups larger than four people. The average number of people per party was 3.3.

Table 6 shows the number of people in the respondent's vehicle. Since the average number of people per vehicle (2.7) was lower than the average size of party (3.3), some winter recreation parties travel in more than one vehicle.

Respondents were asked "What activity was most important to you as a reason for visiting the area?" Table 7 gives the percentage of responses for each primary recreation activity mentioned. The most frequently mentioned activity was downhill skiing, followed by fishing, cross-country skiing, and sightseeing.

Visitors were then asked where they recreated the most in that activity, and their primary recreation zone was recorded (Table 8). Zones 3, 4, and 5 were the primary recreation zones for 92 percent of the respondents.

Table 3. Summary of exit interviewing stations, Sierra National Forest (Winter, 1979).

Interview Station	Number of Recreation Interviews	Percentage of Total Interviews	Number of Interview Days	Number of Interview Hours	Number of Non-Respondents
Shaver Dam	759	81	14	101.0	21
Tamarack Ridge	70	8	17	59.5	0
Tamrack Mountain	38	4	13	45.0	0
Eastwood	42	4	13	48.5	0
Ely Mountain	30	3	6	17.0	0
Total	939	100	63	271.0	21

Table 4. Primary method of travel of exit interview respondents sampled in the Sierra National Forest (Winter, 1979).

Vehicle	Number of Observations	Percent[a]
Car	528	56
Truck	188	20
Van	75	8
Camper	18	2
Motorhome	26	3
4-Wheel Drive	92	10
Motorcycle	7	1
Other	5	1

[a]Percentage calculations are based on 939 observations.

Table 5. Number of people per party of exit interview respondents sampled in the Sierra National Forest (Winter, 1979).

Number of People Per Party	Number of Respondents	Percent[a]
1	108	11
2	395	42
3	120	13
4	150	16
5	45	5
6	29	3
7	25	3
8	17	2
9	15	2
10	6	1
Over 10	27	3
Average Number of People Per Party	3.3	

[a]Percentage calculations are based on 937 respondents providing this information.

Table 6. Number of people in the vehicle of exit interview respondents sampled in the Sierra National Forest (Winter, 1979).

Number of People Per Vehicle	Number of Respondents	Percent[a]
1	127	14
2	434	46
3	137	15
4	148	16
5	37	4
6	27	3
Over 6	26	3
Average Number of People Per Vehicle	2.7	

[a]Percentage calculations are based on 936 respondents providing this information.

Table 7. Primary recreation activity of exit interview respondents sampled in the Sierra National Forest (Winter, 1979).

Primary Recreation Activity	Number of Respondents[a]	Percent[b]
Downhill Skiing	255	27
Fishing	229	24
Cross-Country Skiing	135	14
Sightseeing	99	11
Getting Away	69	7
Snowplay	33	4
Sledding	25	3
Snowmobiling	21	2
Picnicking	11	1
Other	61	7

[a]Number of respondents sampled who indicated the listed activity as the one most important to them as a reason for visiting the area.

[b]Percentage calculations are based on the 938 respondents providing this information.

Table 8. Primary recreation zone of exit interview respondents sampled in the Sierra National Forest (Winter, 1979).

Primary Recreation Zone	Number of Respondents[a]	Percent[b]
1	33	3
2	15	2
3	229	25
4	253	27
5	372	40
10	25	3
Other Zones	8	1

[a]Number of respondents that mentioned the listed zone as the one where they spent the most time recreating in their primary activity (the activity most important to them on that visit.

[b]Percentage calculations are based on 935 respondents providing this information.

Table 9 indicates the primary recreation zone chosen by respondents in each primary recreation activity group. This information gives us an idea of where users participating in various winter activities tended to recreate. For example, slightly over half (52 percent) of the respondents whose primary recreation activity was cross-country skiing, spent most of their time skiing in zone 5.

Respondents were asked to list all zones they had visited during their trip and their length of stay in each zone (Table 10). Zone 5 was visited by the largest number of respondents, followed by zone 4 and zone 3. The longest average length of stay (2.7 hours) occurred in zone 2, where 79 percent of the respondents stayed longer than 12 hours. Zone 4 had the shortest average length of stay (8 hours), where over half of the visitors stayed three hours or less. This table also provides information on respondents' length of stay in the entire study area (all zones). Over half of the respondents stayed six hours or less, whereas only 16 percent stayed over 24 hours. The mean (average) length of stay was 13 hours.

Table 11 gives the average length of stay of respondents in the primary recreation activity groups with sample sizes large enough to be considered representative. Respondents that were "getting away" had the longest average length of stay (23 hours), while those sightseeing had the shortest average length of stay (5 hours).

Table 12 indicates the percentage of respondents visiting each zone for zero, one, two, or three or more nights. Forty-six percent of the visitors to zone 2 spent at least one night. All other zones in the study area had very few winter visitors spending the night.

The number of previous visits made by exit interview respondents appears in Table 13. Twenty-one percent of the respondents had not previously

Table 9. Primary recreation zone of exit interview respondents sampled in the Sierra National Forest, grouped by their primary recreation activity (Winter, 1979).

Primary Recreation Zone	Primary Recreation Activity								
	Downhill Skiing (N=255) Percent[b]	Fishing (N=229) Percent[b]	Cross-Country Skiing (N=135) Percent[b]	Sightseeing (N=99) Percent[b]	Getting Away (N=69) Percent[b]	Snowplay (N=33) Percent[b]	Sledding (N=25) Percent[b]	Snowmobiling (N=21) Percent[b]	Picnicking (N=11) Percent[b]
1	0	1	0	7	16	0	0	0	0
2	0	0	0	0	19	3	0	0	0
3	0	84	2	13	15	6	0	0	18
4	1	12	34	71	44	67	92	9	73
5	99	2	52	5	4	18	8	86	0
10	0	0	10	3	1	6	0	5	9
Other Zones	0	0	2	0	0	0	0	0	0

[a]The zone mentioned by respondents as the one they spent the most time recreating in their primary activity (the activity most important to them that visit).

[b]Percentage calculations are based on the number of respondents (indicated by N) in each primary recreation activity.

Table 10. Visitation and length of stay in study zones for exit interview respondents sampled in the Sierra National Forest (Winter, 1979).

Zone[a]	Number of Respondents[b]	Length of Stay (Hours)							Average Length of Stay (hours)
		1 Hour Percent[c]	2-3 Hours Percent[c]	4-6 Hours Percent[c]	7-12 Hours Percent[c]	13-24 Hours Percent[c]	25-48 Hours Percent[c]	Over 48 Hours Percent[c]	
1	45	22	20	13	2	13	25	4	16.8
2	63	3	2	2	14	38	35	6	26.7
3	261	14	21	26	22	9	7	1	8.7
4	327	19	35	23	6	6	8	2	8.4
5	375	3	14	29	40	4	6	3	10.8
10	37	27	22	16	16	3	11	11	13.1
Total Study Area	938	11	19	26	20	8	11	5	13.0

[a]Zones visited by less than 0.6 percent of the sample are not shown.

[b]Number of respondents sampled who indicated they had recreated in the zone listed. Since respondents could recreate in more than one zone, the number of respondents will be greater than the total sample.

[c]Percentage calculations are based on the number of respondents indicated for each zone.

Table 11. Average length of stay of respondents in the major primary recreation activity groups of exit interview respondents sampled in the Sierra National Forest (Winter, 1979).

Primary Recreation Activity	Number of Respondents	Average Length of Stay (Hours)
Downhill Skiing	255	18
Fishing	229	11
Cross-Country Skiing	135	10
Sightseeing	99	5
Getting Away	68	23

Table 12. Number of nights spent in each zone by exit interview respondents sampled in the Sierra National Forest (Winter, 1979).

Zone[a]	Number of Respondents	Number of Nights: None Percent[b]	One Percent[b]	Two Percent[b]	Three or More Percent[b]
1	45	73	7	16	4
2	63	14	46	29	11
3	261	88	5	5	2
4	327	86	5	6	4
5	375	91	5	3	1
10	37	87	3	5	5
Total Study Area	938	80	9	7	4

[a]Zones visited by less than 0.6 percent of the sample are not shown.

[b]Percentage calculations are based on the number of respondents indicated for each zone.

Table 13. Number of previous visits of exit interview respondents sampled in the Sierra National Forest (Winter, 1979).

Visits[a]	Number of Respondents	Percent[b]
0	196	21
1	28	3
2	86	9
3	82	9
4	17	2
Over 5	529	56

[a]Number of previous visits to the Sierra National Forest in the past year.

[b]Percentage calculations are based on 938 respondents providing this information.

visited the area. Over half of the respondents (56 percent) had visited the area five or more times in the previous year.

Summer Results

Table 14 indicates the number of summer exit interviews obtained at each interview station. In total there were 2,225 recreation interviews conducted during the summer of 1979.

Interviewers recorded the type of vehicle the respondent was driving or riding in (Table 15). Passenger cars and trucks were the most common vehicles.

Table 16 presents information on the size of the respondent's recreation party. About one third (34 percent) of the respondents came with only one other person. Only 15 percent of the respondents came in groups larger than six people. The average number of people per group was 4.6.

Table 17 gives the number of people in the respondent's vehicle. Since the average number of people per vehicle (3.0) was lower than the average size of party (4.6), it seems that many summer recreation parties travel in more than one vehicle.

Visitors were asked "What activity was most important to you as a reason for visiting the area?" Table 18 gives the percentage of responses for each primary recreation activity mentioned. The most frequently mentioned activity was fishing, followed by getting away, sightseeing, camping near auto, and camping away from auto.

Visitors were then asked where they recreated the most in that activity, and their primary recreation zone was recorded (Table 19). Zone 10 and zone 4 were each the primary recreation zones of nearly one quarter of the respondents.

Table 20 indicates the primary recreation zone chosen by respondents in each primary recreation activity group. This gives us an idea of where users

Table 14. Summary of exit interviewing stations, Sierra National Forest (Summer, 1979).

	Number of Recreation Interviews	Percentage of Total Interviews	Number of Interview Days	Number of Interview Hours	Number of Non-Respondents
Shaver Dam	879	39	19	123.5	30
Kaiser Road	840	38	23	138.5	12
Dinkey Creek	506	23	22	139.0	27
Total	2,225	100	64	401.0	69

Table 15. Primary method of travel of exit interview respondents sampled in the Sierra National Forest (Summer, 1979).

Vehicle	Number of Observations	Percent[a]
Car	918	41
Truck	680	31
Van	187	8
Camper	48	2
Motorhome	63	3
4-Wheel Drive	254	11
Motorcycle	67	3
Other	6	0

[a]Percentage calculations are based on 2,223 observations.

Table 16. Number of people per party of exit interview respondents sampled in the Sierra National Forest (Summer, 1979).

Number of People Per Party	Number of Respondents	Percent[a]
1	122	5
2	753	34
3	326	15
4	391	18
5	174	8
6	125	6
7	75	3
8	52	2
9	43	2
10	36	2
Over 16	124	6
Average Number of People Per Party	4.6	

[a]Percentage calculations are based on 2,221 respondents providing this information.

Table 17. Number of people in the vehicle of exit interview respondents sampled in the Sierra National Forest (Summer, 1979).

Number of People Per Vehicle	Number of Respondents	Percent[a]
1	209	9
2	929	42
3	407	18
4	366	17
5	147	7
6	77	3
Over 6	86	4
Average Number of People Per Vehicle	3.0	

[a]Percentage values are based on 2,221 respondents providing this information.

Table 18. Primary recreation activity of exit interview respondents sampled in the Sierra National Forest (Summer, 1979).

Primary Recreation Activity	Number of Respondents[a]	Percent[b]
Fishing	941	42
To Get Away	310	14
Sightseeing	229	10
Camping Near Auto	149	7
Camping Away From Auto	128	6
Hiking/Walking	96	4
Swimming	84	4
Water Skiing	50	2
Boating	44	2
Sailing	39	2
Picnicking	24	1
Motorcycling	24	1
Other	107	5

[a]Number of respondents sampled who indicated the listed activity as the one most important to them as a reason for visiting the area.

[b]Percentage calculations are based on 2,225 respondents provding this information.

Table 19. Primary recreation zone of exit interview respondents sampled in the Sierra National Forest (Summer, 1979).

Primary Recreation Zone	Number of Respondents[a]	Percent[b]
1	51	2
3	372	17
4	479	22
5	25	1
6	319	14
7	144	6
8	35	2
9	115	5
10	494	22
11	36	2
12	18	1
22	104	5
Other Zones	33	1

[a]Number of respondents that mentioned the listed zone as the one where they spent the most time recreating in their primary recreation activity (the activity most important to them that visit).

[b]Percentage calculations are based on 2,225 respondents providing this information.

Table 20. Primary recreation zone of exit interview respondents sampled in the Sierra National Forest, grouped by their primary recreation activity (Summer, 1979).

Primary Recreation Zone[a]	Primary Recreation Activity											
	Fishing (N=941) Percent[b]	To Get Away (N=310) Percent[b]	Sightseeing (N=229) Percent[b]	Camping Near Auto (N=149) Percent[b]	Camping Away From Auto (N=128) Percent[b]	Hiking (N=96) Percent[b]	Swimming (N=96) Percent[b]	Water Skiing (N=50) Percent[b]	Boating (N=44) Percent[b]	Sailing (N=39) Percent[b]	Picnicking (N=24) Percent[b]	Motorcycling (N=24) Percent[b]
1	1	6	4	1	0	4	6	0	2	0	0	4
3	16	14	16	8	0	6	35	78	66	10	17	8
4	19	21	26	36	0	26	12	18	27	87	29	29
5	1	1	0	1	0	2	1	2	0	0	0	0
6	14	25	14	19	2	13	12	2	0	0	21	17
7	10	5	10	2	1	0	0	0	0	0	8	4
8	1	1	0	1	10	2	1	0	0	0	0	8
9	7	3	2	7	8	4	0	0	2	0	4	0
10	27	19	24	23	7	20	32	0	2	3	21	25
11	1	2	1	0	6	7	0	0	0	0	0	0
12	1	1	1	1	0	2	0	0	0	0	0	0
22	1	1	1	0	60	13	1	0	0	0	0	0
Other Zones	0	1	0	2	1	1	0	0	0	0	0	4

[a]The zone mentioned by respondents as the one they spent the most time recreating in their primary recreation activity (the activity most important to them on that visit).

[b]Percentage calculations are based on the number of respondents (indicated by N) in each primary recreation activity.

participating in various summer activities tended to recreate. For example, slightly over one fourth (27 percent) of the respondents whose most important activity was fishing, spent most of their time fishing in zone 10.

Respondents were asked to list all zones they had visited during their trip and their length of stay in each zone (Table 21). Zone 10 was visited by the largest number of respondents, followed by zone 4, zone 3, and zone 6. The longest average length of stay (102 hours) occurred in zone 22 (John Muir Wilderness), where 64 percent of the respondents stayed longer than three days. Zone 7 had the shortest average length of stay (22 hours), where 59 percent of the visitors stayed 12 hours or less. This table also provides information on respondents' length of stay in the entire study area (all zones). About 70 percent of the respondents stayed more than 12 hours, whereas very few (8 percent) stayed less than three hours. The average length of visit was 52 hours.

Table 22 gives the average length of stay of respondents in the primary recreation activity groups with sample sizes large enough to be considered representative. Respondents who were camping away from their autos had the longest average length of stay (110 hours), while sightseers had the shortest average length of stay (17 hours).

Table 23 indicates the percentage of respondents visiting each zone for zero, one, two, or three or more nights. Two-thirds of the visitors to zone 22 (John Muir Wilderness) spent three or more nights. In contrast, two-thirds of respondents visiting zone 7 had not spent any nights there.

The number of previous visits made by exit interview respondents appears in Table 24. Thirty-two percent of the respondents had not previously visited the study area. Forty percent of the sample had visited the area five or more times in the past year.

Table 21. Visitation and length of stay in study zones for exit interview respondents sampled in the Sierra National Forest (Summer, 1979).

Zone[a]	Number of Respondents[b]	Length of Stay (Hours)							
		Under 3 Hours	3-6 Hours	7-12 Hours	13-24 Hours	25-48 Hours	49-72 Hours	Over 72 Hours	Average Length of Stay (Hours)
		Percent[c]	Percent[c]	Percent[c]	Percent[c]	Percent[c]	Percent[c]	Percent[c]	
1	80	25	24	3	11	16	7	14	32
3	432	14	27	9	16	14	7	13	34
4	581	13	14	4	16	20	13	20	54
5	32	9	25	9	19	22	9	6	31
6	361	16	20	7	19	14	8	15	36
7	186	13	26	20	12	15	7	7	22
8	46	4	4	11	2	24	17	37	65
9	157	9	13	13	11	21	15	18	44
10	703	23	17	12	10	17	10	11	33
11	44	4	25	18	5	30	14	4	25
12	21	0	33	14	10	24	9	9	27
22	118	0	2	2	5	13	14	64	102
Total Study Area	2225	8	14	8	14	23	13	20	52

[a]Zone visited by less than 0.5 percent of the sample are not shown.

[b]Number of respondents sampled who indicated they had recreated in the zone listed. Since recreationists could recreate in more than one zone, the number of respondents will total above the sample size.

[c]Percentage calculations are based on the number of respondents indicated for each zone.

Table 22. Average length of stay of respondents in the major primary recreation activities of exit interview respondents sampled in the Sierra National Forest (Summer, 1979).

Primary Recreation Activity	Number of Respondents	Average Length of Stay (Hours)
Fishing	941	50
To Get Away	310	47
Sightseeing	229	17
Camping Near Auto	149	61
Camping Away from Auto	128	110
Hiking	96	57
Swimming	84	50
Water Skiing	50	96
Boating	44	63

Table 23. Number of nights spent in each zone by exit interview respondents sampled in the Sierra National Forest (Summer, 1979).

Zone[a]	Number of Respondents	Number of Nights			
		None Percent[b]	One Percent[b]	Two Percent[b]	Three or More Percent[b]
1	80	47	14	19	20
3	432	49	24	9	17
4	581	32	23	17	28
5	32	37	22	25	16
6	361	48	21	12	19
7	186	66	18	8	8
8	46	30	13	22	35
9	157	36	17	22	24
10	703	56	15	15	14
11	44	50	23	20	7
12	21	48	33	10	10
22	118	12	9	12	67
Total Study Area	2225	33	23	17	26

[a]Zones visited by less than 0.5 percent of the sample are not shown.

[b]Percentage calculations are based on the number of respondents indicated for each zone.

Table 24. Number of previous visits of exit interview respondents sampled in the Sierra National Forest (Summer, 1979).

Visits[a]	Number of Respondents	Percent[b]
0	715	32
1	156	7
2	228	10
3	197	9
4	38	2
Over 5	879	40

[a]Number of previous visits to the Sierra National Forest in the past year.

[b]Percentage calculations are based on respondents providing this information.

EXHIBIT A

EXIT INTERVIEW FORM

Figure A-1
(EXIT INTERVIEW Form)

Approved
OMB No. 040-R3857
Expires June 30, 1980

VISITOR REGISTRATION

To visit (area) _____ Location of exit _____ _____

Date _____ (Time) _____ Location of entrance _____

Starting Date _____ (Time) _____ Primary method of travel _____

Number of people in group _____ (Vehicle) _____

The primary trip purpose _____ _____

How many times visited the area in the past year

___ 1) First time ___ 3) Twice ___ 5) Four times

___ 2) Once before ___ 4) Three times ___ 6) Five or more times

Using a map of the area, list all zones traversed in sequence of travel.

Travel Zones	1	2	3	4	5	6	7	8	9	10	11	12	13
# of nights in each	___	___	___	___	___	___	___	___	___	___	___	___	___

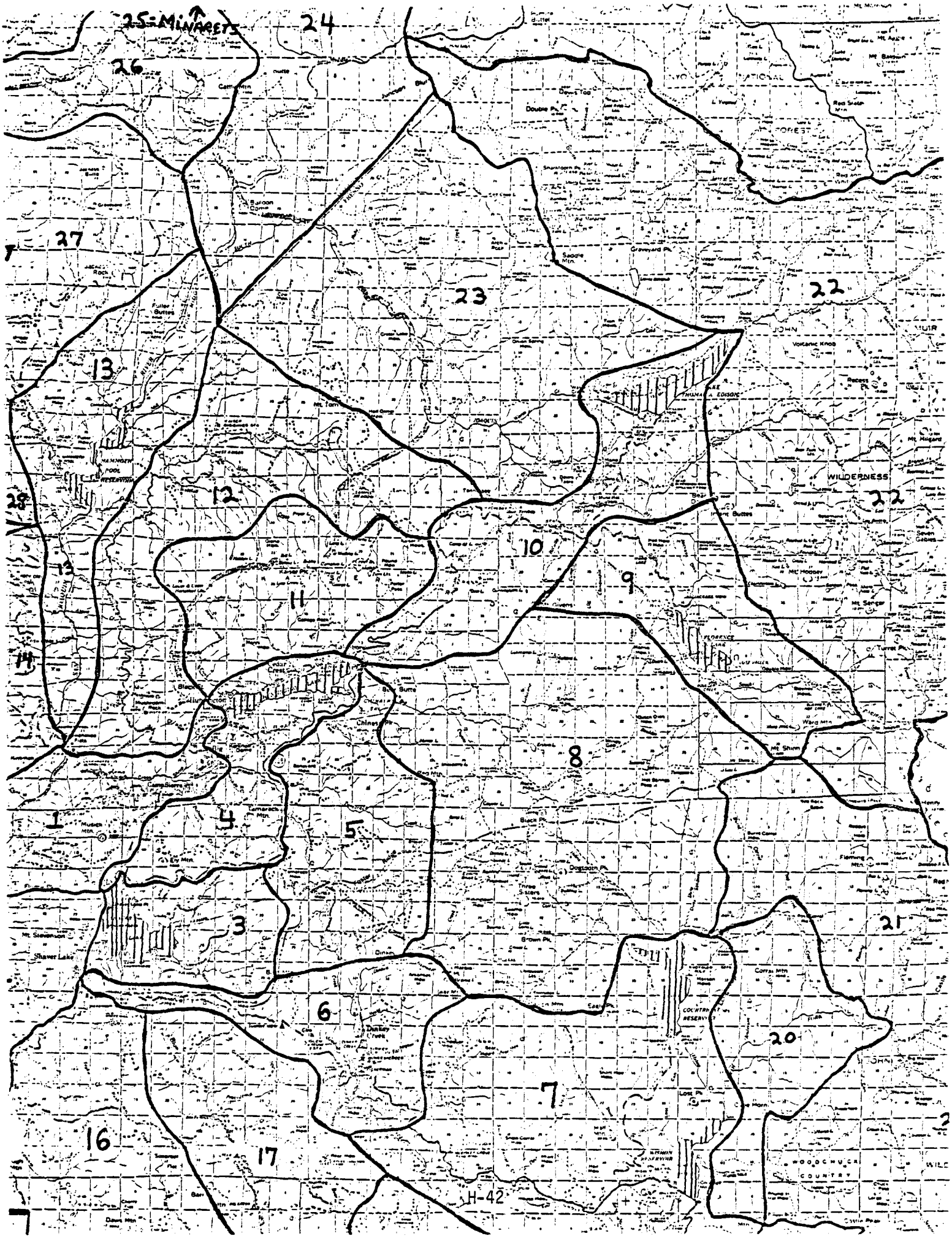
Travel Zones	14	15	16	17	18	19	20	21	22	23	24	25	26
# of nights in each	___	___	___	___	___	___	___	___	___	___	___	___	___

NAME _____

ADDRESS _____

CITY, STATE _____ ZIP _____

Completion of this form is voluntary and is not required by law or to obtain a federal benefit.


25=Minarets
24
26
27
23
22
13
12
10
9
11
14
8
1
4
5
3
6
7
16
17
21
20
H-42

APPENDIX I

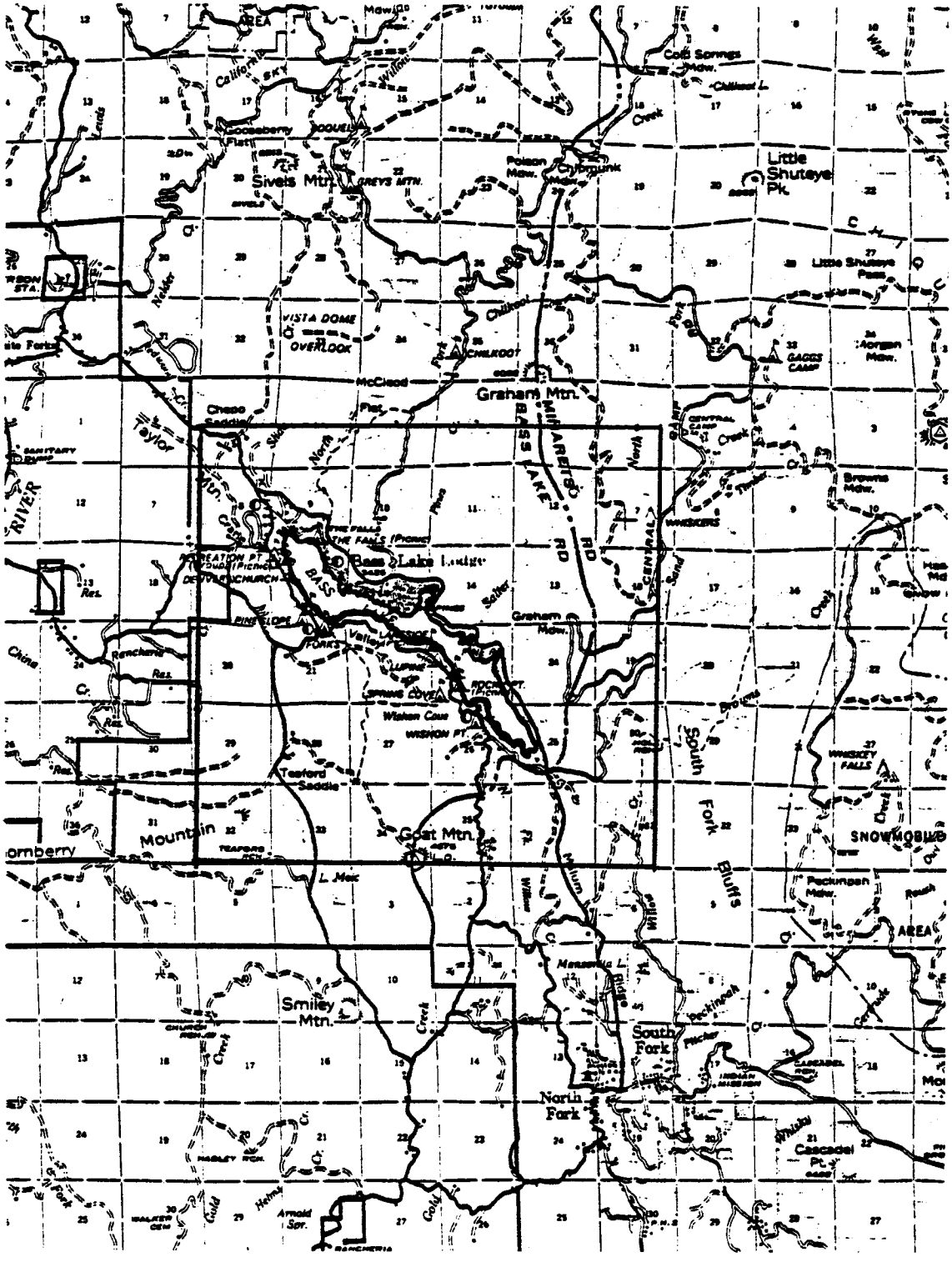
RECREATION EXPERIENCE PREFERENCES OF BASS LAKE USERS

I. INTRODUCTION

A study of Sierra National Forest (SNF) users entitled "Sierra National Forest: Cross-Validation User Preference Study" was undertaken in 1979 by Colorado State University (CSU) and the Rocky Mountain Forest and Range Experiment Station (RMS) to obtain recreation related information on SNF users. As part of the SNF study, a secondary study of the Bass Lake area was conducted.

Bass Lake (Figure 1) is a popular SNF recreation site located to the northwest of the designated SNF study area. Because of the interest of SNF managers in Bass Lake recreationists, a supplementary data gathering effort was conducted there during the summer of 1979 as a part of the overall research, which focused on the Shaver Lake-Huntington Lake study area. A "grab sample" technique was used at Bass Lake to provide managers with information about recreation users in that specific area. This report discusses the procedure and results of the Bass Lake portion of the SNF study.

Figure 1. BASS LAKE, Sierra National Forest.



II. METHODS

There were two data collection modes for this study. A short one-page interview schedule (called the exit interview form) was used to collect recreation use information and names and addresses of selected users of the area to develop a sample frame. The second data collection technique was a mail questionnaire to acquire information on: (1) user preferences for specific recreation activity and experience opportunities; (2) reactions to possbile management actions; and (3) characteristics of the recreation users. It should be made clear that responses to all interviewing was voluntary, so no one was obligated to respond to any of the data collection efforts.

Exit Interview

The primary objective of the exit interview procedure was to collect a sample of names and addresses of Bass Lake recreationists for receipt of the mail questionnaire. An important concern was to not take much of the users' time during their visit to the SNF.

The procedure for contacting Bass Lake recreationists utilized a grab sample interview technique that required contacting recreationists at designated locations as they were recreating. The interviewee was asked for his/her cooperation concerning participation in the study and in supplying names and addresses for follow-up questionnaires. Any people refusing to participate were thanked for their time and left alone. The average total interview time was approximately two minutes.

The sampling scheme adopted for the Bass Lake research consisted of "grab sampling" recreationists in the Bass Lake area. For the purposes of this research, a grab or fortuitous sample consisted of using the exit interview questionnaire at a designated recreation site to get information from a sample of recreation users from that area. Sampling using a grab sample technique might or might not produce a representative sample, but it is not designed a priori to do so; it is however, less expensive to implement. Therefore, the Bass Lake respondents came from a convenience or fortuitous sample which was designed to provide useful information about user preferences in a specific area. Areas selected for grab sampling were not considered part of the main study area; hence use statistics were not calculated for those sites.

Questionnaire

As recreationists were contacted in the Bass Lake area, a short, one-page questionnaire (exit interview form) was used to record their responses (Exhibit A, Figure A-1). The respondents were first questioned as to whether or not they were primarily recreating. For those recreating in the study area, names and addresses were requested for future contact.

Mailed Questionnaire

The mailback questionnaire phase of the research was the most important for identifying the recreation related preferences of visitors to the Bass Lake area. The names and addresses obtained from the exit interview constituted the sample for distribution of the mail questionnaire.[1] The

[1]The sample of recreationists obtained for this study were acquired during a time period when California service stations had a limited and variable supply of gasoline. Therefore, we cannot be certain that 1979 was a representative year to sample SNF recreationists.

content of the mail questionnaire, mailing procedures, and data analysis are discussed in this section.

Mail Questionnaire Content

The mail questionnaire contained questions designed to provide several broad types of information:

1. Questions designed to identify the types of recreation experiences users desire.
2. Questions designed to measure users' opinions about actual and possible management actions in the area.
3. Questions focusing on the demographic characteristics of the users.

Fifty-six "items" were used as questions to identify and measure user preferences for different recreation experiences. These items were selected from a pool of items used in previous studies by Driver and Brown in other parts of the country. For analysis and data reporting purposes, statistically and logically related items are grouped into scales (i.e., a small group of items defining the same type of recreation experience, such as enjoyment of nature, development of skills, escaping noise back home, etc.). Similar scales can be combined even further into experience domains. Domains are broader concepts than scales, and are composed of one or more scales which together represent a similar general theme, such as general escape, learning, achievement, etc. This study reports the users' reponses to both the scales and domains described by the selected recreation experience preference items.[2]

---

[2]Refer to Exhibit A, Table A-1 for the complete list of items, scales, and domains used in this study.

The recreation experience preference questions were presented to the respondents using a Likert response format. That format permitted the respondent to indicate the degree to which a particular type of recreation experience was preferred or valued relevant to participation in a particular activity in the SNF. Two different sets of instructions and related response formats were used. This required two separate questionnaires and two subsamples of respondents. One format asked respondents to rate how important each of the 56 recreation experience preference items[3] was to them as a reason for participating in their selected most important activity (i.e., that one activity they enjoyed the most or spent the most time doing in the SNF). They ranked each response on a six-point response format ranging from "not important" to "extremely important."[4] The other format asked the degree to which each listed experience would either add to or detract from their satisfaction if they were to participate in their selected most important activity next summer.[5] Responses to this format were obtained on a nine-point response format from "most strongly adds" to "most strongly detracts." In each case the same set of recreation experience preference items was used.

A second section using a modified Likert response format solicited users' opinions on specific management issues of special concern to Sierra planners and managers. The 16 questions focusing on possible management considerations were developed with input from SNF recreation staff users

---

[3]A total of 58 experience preference items were included on the questionnaires. The first two items of each questionnaire were not analyzed because respondents need a couple of items to become accustomed to the response format. Only results from 56 items are reported.

[4]See Exhibit A, Figure A-3 (Bass Lake-Yellow) - Section VI for example.

[5]See Exhibit A, Figure A-2 (Bass Lake-Buff) - Section VI for example.

responded to the questions using a nine-point response format from "strongly favor" to "strongly oppose."[6] Additional management questions solicited users' opinions on the quality of commerical services, traffic congestion, vandalism, and regulations in and around the Bass Lake area.

Questions about the demographic characteristics of the sampled recreationists were included to better describe the users of the SNF. Information was obtained concerning each respondent's age, sex, education, community population, and zip code of place of permanent residence.

Data Collection

Recipients of the mail questionnaires were selected from the sample frames of names and addresses provided by the exit interviewing. People were identified to receive either questionnaire by randomly selecting a subsample from the sample of Bass Lake recreationists. A survey packet containing the questionnaire, cover letter, and postage-paid return envelope was mailed to each selected user. Those people who did not respond to the first mailings were sent a second survey packet three weeks after the first mailing and a subsequent third packet three weeks later if no response was received after the second mailing. Respondents who completed and returned the questionnaires, and that portion of the sample whose survey packets were returned as non-deliverable, were not sent questionnaires during follow-up mailings.

Analysis

Analysis of the mailback questionnaire data using the Colorado State University Cyber 172 computer was initiated after the questionnaire

---

[6]See Exhibit A, Figure A-2 (Bass Lake-Buff) - Section III for example.

information was coded, keypunched on computer cards, and verified for accuracy. Statistical analysis routines were selected from the Statistical Package for the Social Sciences (Nie et al., 1975) and I-Clust (Revelle, 1976) computer packages.

Several statistical programs (frequencies, cross-tabs, ANOVA, breakdown, etc.) from the Statistical Package for the Social Sciences (SPSS) were used to produce descriptive and summary statistics on selected questionnaire data and to compare various user groups. Data describing visitor characteristics were analyzed using the number of responses and percentages in each response category, rank orders, means, and standard deviations. Analysis of responses categorized into Likert-type scaled formats (management questions and recreation experience preferences) also used the selected descriptive statistics mentioned above. A discussion of these statistics is presented below.

Mean values used to describe an average response to selected questions were determined by dividing the sum of all responses by the number of respondents. When logically related items were grouped into a category (scale), a respondent's scale score was calculated, and overall sample means were derived from those values. This procedure consisted of summing the individual item scores (separately for each respondent) and dividing by the number of items in the scale answered by the respondent. The overall mean scale scores were then calculated from the individual respondent scale scores. Since previous research had consistently defined a close association between items belonging to the same scale, respondents only had to answer one item from a scale to have a scale score determined. Similarly, the

overall mean domain[7] scores for domains with multiple scales were determined by developing a domain score (from the scale scores) for each respondent and then averaging these scores to get the overall mean domain score across all respondents.

Standard deviations give one indication of the variability or variance of all the responses around the mean value. Individual item standard deviations were computed using the standard computational formula found in any statistics book. Standard deviations for multiple item scales were computed by averaging standard deviations of the items within that scale. Multiple scale domains have standard deviations averaged from the standard deviations of the scales belonging to each domain.

Rank orders are reported to determine the relative importance (highest to lowest) of a series of scores or numbers listed in the tables of this report. The score having the highest value received a rank of one with subsequent scores ranked sequentially in descending order from highest to lowest. Two or more scores with equal values were ranked the same, but were each counted individually to reflect proper ranking of subsequent data. For example, column of rank orders might show number one rankings for each of three equal scores followed by the next score ranked fourth. That score was ranked fourth, instead of second or third, because there were three scores with higher values.

The respondents were categorized into activity subgroups based on the activity which each had indicated as "most important" (e.g., boating, swimming, camping near auto, etc.). Because respondents chose a wide array

---

[7]While most of the descriptive statistics are presented through discussion of relationships between recreation experience preference scales, the domain values are included on most tables to: (1) define logical groupings of scales for interpretation; and (2) fully document the results of the research.

of activities as most important to their visits, many of these activity subgroups were not large enough to allow statistical comparisons. Six of the activity groups were large enough to permit comparison through examination of group means on both the recreation experience preference scales and the possible management actions.

The magnitude of the discrepancy between the mean values for the recreation experience preference scales formed the major criterion for determining similarities or differences between the activity groups. Statistical tests will consistently isolate statistically significant differences when the means differ, by as little as 0.5 (Driver et al. 1977). Yet, few recreation experiences with mean differences that small can be considered to be practically different for management purposes. Therefore, all statistically significant differences (using statistical tests) are not always worth worrying about from a managerial perspective. We judge that differences in mean scores of 1.0 or more scale points (on the response scale) are meaningful for management, based on the sample size available for the Bass Lake study. This is obviously a judgment on our part based on past research experience and working closely with recreation resource managers.

III. CHARACTERISTICS AND PREFERENCES OF BASS LAKE USERS

This section of the report summarizes the results from the mailback questionnaires sent to the 1979 summer sample of Bass Lake recreationists.

Mail Questionnaire Response

The sample of Bass Lake summer recreationists was randomly divided into two groups for receipt of either the buff or yellow questionnaires sent during the spring of 1980. Table 1 presents the response rates for each of the questionnaires compiled after three mailings. Fifty-four percent of the Bass Lake buff questionnaires and 57 percent of the Bass Lake yellow questionnaires were returned ready for keypunching (Table 1). Questionnaires categorized as "non-deliverable" never reached the appropriate address and accounted for 2 percent and 3 percent of the respective samples. The effective sample size represents the number of questionnaires actually reaching the intended recipient.

Sample Summary Statistics

Characteristics of the Bass Lake Recreation Sample

Selected demographic characteristics of the respondents sampled at Bass Lake are presented in Table 2. The average (mean) age of Bass Lake respondents was 36 years. Two age groupings, 26-35 and 36-50, accounted for two-thirds of the sample. Fifty-six percent of the respondents were male. Almost 60 percent of the sample had at least some college or technical education, with

Table 1. Results of the Bass Lake Sierra N.F. Questionnaire mailings (Summer, 1979).[a]

Questionnaires[b]	Sample Size	Non-Deliverable	Effective Sample Size[c]	Returned Complete	Response Rate Percentage[d]
Buff	196	4	192	104	54
Yellow	195	6	189	107	57

[a]The questionnaire was sent through the postal system in the fall of 1979.

[b]Copies of the questionnaire can be found in Exhibit A, Figure A-2 (Bass Lake Buff) and Figure A-3 (Bass Lake Yellow).

[c]Effective sample size reflects the number of people actually receiving the questionnaire.

[d]Percentage calculated by dividing the number of returned questionnaires by the total sample size.

Table 2. Age, sex, education, size of place of permanent residence, and cultural background sampled at Bass Lake, Sierra N.F. (Summer, 1979).

Age	Age	Percent	
(N=184)	Under 18	5	
	18 - 25	16	
	26 - 35	35	Mean = 36 years
	36 - 50	32	
	51 - 65	12	
	Over 65	1	
Sex	Sex	Percent	
(N=184)	Male	56	
	Female	44	
Education	Years of Formal Schooling	Percent	
(N=182)	Under 13	40	
	13 - 16	46	Mean = 14 years
	Over 16	14	
Size of Place of Permanent Residence	Population	Percent	
(N=177)	500,000 or more	12	
	100,000-500,000	25	
	25,000-100,000	28	
	5,000-25,000	24	
	Below 5,000	3	
	Rural	7	
Cultural Background	Cultural Background	Percent	
(N=183)	Indian	2	
	Hispanic	5	
	Oriental	1	
	White	91	
	Black	2	

the average schooling equivalent to almost two years of college. Very few respondents lived in communities with greater than 500,000 or less than 5,000 total population. Hispanic and white respondents accounted for 96 percent of the sample.

A breakdown of residence locations based on zip codes is shown in Table 3. About 30 percent of the respondents were from Los Angeles, 4 percent from San Francisco, and 33 percent were from Fresno. Local and out-of-state recreationists contribute little (3 percent and 8 percent respectively) to the total recreation population of the Bass Lake area of the SNF.

Table 4 gives an indication of the familiarity the respondents have with the SNF. Respondents were asked to indicate the number of summer visits they had made to the SNF. Fifty-two percent of the respondents had visited the area fewer than four times during the past two summers. Approximately 14 percent of the sample could be characterized as very familiar with the SNF accounting for at least 16 previous visits per person.

Recreation Activities of Bass Lake Users

A summary of the Bass Lake SNF summer recreation activities is shown in Table 5. Respondents checked all the activities they participated in during the summer of 1979. Rank orders for activities were calculated assigning the highest ranks to the activities with the most respondents indicating recreation participation. Swimming was ranked number one. Other activities with at least 50 percent respondent participation included camping near auto, sightseeing, picnicking, hiking, fishing, boating, and waterskiing.

The "most important" activity of each respondent was determined by asking which activity each person spent the most time doing while visiting

Table 3. Residence of respondents sampled at Bass Lake, Sierra N.F., (Summer, 1979).

Residence Locations[a]	Number of Respondents	Percent[b]
Local[c]	15	8
Fresno	60	33
San Francisco	7	4
Los Angeles	55	30
Other California	40	22
Out-of-State	5	3

[a]Residence is based on zip code of respondent's permanent address.

[b]Percentage values are based on N=182 respondents with valid zip codes.

[c]Local includes respondents from communities within and in close proximity to the Sierra National Forest.

Table 4. Number of previous summer visits to the Sierra N.F. of respondents sampled at Bass Lake (Summer, 1979).

Number of Previous Visits[a]	Number of Respondents	Percent[b]
1	27	15
2 - 3	67	37
4 - 6	39	21
7 - 15	25	14
16 - 30	13	7
Over 30	12	7

[a]Number of previous summer visits to the Sierra National Forest in the past year.

[b]Percentage values are calculated based on N=183 respondents answering this question.

Table 5. Number of respondents sampled indicating participation in specific activities at Bass Lake, Sierra N.F. (Summer, 1979).[a]

Activity	Number of Respondents[b]	Percent[c]	Rank Order[d]
Swimming	159	86	1
Camping Near Auto	142	76	2
Sightseeing	131	70	3
Picnicking	119	64	4
Hiking	118	63	5
Fishing	116	62	6
Boating	111	60	7
Waterskiing	92	50	8
Camping Away From Auto	48	26	9
Motorcycling	30	16	10
4-Wheel Driving	28	15	11
Canoeing	16	9	12
Sailing	14	8	13

[a]Since recreationists could participate in more than one activity, the precent column will not total 100 percent.

[b]Number of respondents sampled who indicated recreation participation in the listed activity.

[c]Percentage values are calculated based on N=186 respondents answering this question.

[d]Activities are ranked in descending order based on the number of respondents in each activity.

the SNF. Table 6 shows that camping near auto, waterskiing, and swimming were each chosen as most important activity by at least 15 percent of the respondents. It is important to be familiar with the terminology "most important" activity, and to understand the question asked of the respondents.

Recreation Experience Preferences (REP's)

Two different question formats (adds-detracts and importance) were used in this study to determine the REP's of sampled recreationists visiting Bass Lake during the summer of 1979. This section of the report presents the analysis of the REP scales using the adds-detracts format to present the results of the REP questions. The adds-detracts format asked respondents to rate whether each REP item would add to or detract from the level of satisfaction they would probably realize if they visited the same area the following summer and participated in their listed most important activity.

Several different levels of data specificity and statistics for data analysis are used in this report to document the REP's of Bass Lake recreationists. This section presents a managerially relevant subset[8] of this information including: (1) overall REP's of the sample; and (2) REP's of recreationists participating in selected most important activities.

Overall REP's of Bass Lake Users

The 56 REP items included on the Bass Lake mail questionnaires were grouped according to previous research into 43 scales and 19 domains (Table 7).

---

[8]Comprehensive documentation of the Bass Lake REP analyses are in Exhibit B, Tables B-1 to B-4. Included in these tables are the means, standard deviations, and number of respondents for the REP items, scales, and domains for all recreationists sampled in the Bass Lake area. Detailed REP analyses are also available for all recreationists categorized by most important activity. Additionally, Appendix B contains the above REP documentation for Bass Lake respondents receiving the questionnaire with the importance format.

Table 6. The most important activity of the respondents sampled at Bass Lake, Sierra N.F. (Summer, 1979).

Most Important Activity[a]	Number of Respondents[b]	Percent[c]
Camping Near Auto	32	18
Waterskiing	31	17
Swimming	26	15
Fishing	20	11
Hiking	17	10
Boating	13	7
Camping Away From Auto	11	6
Picnicking	11	6
Sightseeing	6	3
Rest and Relaxation	4	2
Photography	1	1
Other Activities	4	2

[a]Activities are listed in descending order based on the number of respondents. Activities which were not listed as a most important activity by any of the respondents are not included in this table.

[b]Number of respondents sampled who listed that activity as the one they spend the most time doing during their visits to the Sierra National Forest.

[c]Percentage values are calculated based on N=176 respondents answering this question.

Table 7. Recreation experience preference domain and scale (offset to the right) for those respondents sampled at Bass Lake, Sierra N.F. using the "adds to-detracts from satisfaction" response format (Summer, 1979).

Recreation Experience Preferences Domain Scale	Total Sample (N=86)[a] Mean[b] Domain	Scale	Rank of Scale Means[c]
1. Relationships with Nature	3.3		
Scenery		3.3	2
General Nature Experience		3.2	4
2. Escape Personal-Social Pressure	3.2		
Tension Release		3.0	5
Slow Down Mentally		2.9	7
Escape Role Overloads		3.5	1
Escape Daily Routine		3.3	2
3. Family Togetherness	2.9		
Family Togetherness		2.9	7
4. Being with People	2.7		
Being with Friends		2.5	14
Being with Similar People		3.0	5
5. Security	2.6		
Social Security		2.6	11
6. Exercise/Physical Fitness	2.5		
Exercise/Physical Fitness		2.5	14
7. Physical Rest	2.5		
Physical Rest		2.5	14
8. Nostalgia	2.4		
Nostalgia		2.4	17
9. Escape Physical Pressure	2.3		
Tranquility		2.6	11
Seek Open Space		2.7	9
Privacy		.9	37
Escape Crowds		2.7	9
Escape Physical Stressors		2.6	11
10. Equipment	2.1		
Equipment		2.1	20
11. General Learning	2.0		
General Learning		2.2	19
Exploration		2.4	17
Geography of Area		1.4	34
Learn About Nature		2.0	21
12. Temperature	1.9		
Temperature		1.9	25
13. Reflect on Personal Values	1.8		
Spiritual		2.0	21
Introspection		1.5	30
14. Achievement	1.7		
Reinforcing Self Image		1.9	25
Social Recognition		.7	39
Skill Development		2.0	21
Competence Testing		1.7	27
Seeking Stimulation		2.0	21
15. Leadership/Autonomy	1.4		
Independence		1.6	29
Autonomy		1.5	30
Control Power		1.5	30
Teaching-Sharing Skills		1.7	27
Leading Others		.5	41
16. Creativity	1.4		
Creativity		1.4	34
17. Meeting-Observing New People	1.2		
Meeting New People		1.5	30
Observing Other People		.9	37

Table 7. Continued.

Recreation Experience Preferences Domain Scale	Total Sample (N=86)[a] Mean[b] Domain	Scale	Rank of Scale Means[c]
18. Risk Taking	.5		
Risk Taking		-.6	43
Risk Moderation		1.3	36
Risk Avoidance		.7	39
19. Escaping Family	-.2		
Escaping Family		-.2	42

[a]Calculations for each domain and scale are based on at least the number of respondents indicated by N.

[b]Means are based on responses to a nine-point response format from +4 (very strongly adds) to -4 (very strongly detracts). See Exhibit B for a more detailed presentation of activity group REP statistics.

[c]Ranks are based on mean scores on the REP scales with tied scores given the same rank.

The REP scale scores, like the individual REP item scores, can vary from +4 (most strongly adds to satisfaction) to -4 (most strongly detracts from satisfaction). All but two of the mean scale scores indicated scales that added to the respondents' satisfaction. The mean scores ranged from a low value on the Risk Taking scale of -.6 to a high value of 3.5 on the Escape Role Overload scale. The REP scales were ranked ordered to give a better indication of the relative importance of all the scales. The scales were rank ordered from those with the highest mean scores to scales with the lowest means. Scales with the same means were assigned equivalent ranks, and subsequent ranks were adjusted to reflect the number of scales with higher ranks.

Among the eight scales that added most to Bass Lake users' satisfaction were the four scales comprising the domain Escape Personal-Social Pressure, both scales from the Relationship with Nature domain, and the Being with Similar People and Family Togetherness scales. The next four scales to follow in rank order all relate to escaping physical pressures. These first 12 scales all added, at least moderately, to the satisfaction of Bass Lake recreationists. Ranked as adding least to respondents' satisfaction were the scales Risk Taking, Escaping Family, and Leading Others.

Comparison of REP's of Selected User Groups

Table 8 lists the mean scores and rank orders on the scales and domains (adds-detracts format) of respondents in each most important activity group with a sample size large enough for comparative analysis. The activities included in this analysis are: boating, swimming, waterskiing, camping near auto, hiking and fishing.

Comparison of the REP's of activity groups, involves examination of group means for each scale, and each activity group's rank ordering of the scales, based on those mean values. The scales within domains Being with People

Table 8. Recreation experience preference domain (D) and scale (S) (offset to the right) means for those respondents sampled at Bass Lake, Sierra N.F., using the "adds to - detracts from satisfaction" response format, grouped by their most important activity (Summer, 1979).

Recreation Experience Preferences Domain / Scale	Most Important Activity Groups									
	1 Boating (N=9)[a]			2 Camping Near Auto (N=13)[a]			3 Hikers (N=9)[a]			4 Swimmers (N=13)[a]			5 Waterskiers (N=14)[a]		
	Mean[b] D	Mean[b] S	Rank of Scale Means[c]	Mean[b] D	Mean[b] S	Rank of Scale Means[c]	Mean[b] D	Mean[b] S	Rank of Scale Means[c]	Mean[b] D	Mean[b] S	Rank of Scale Means[c]	Mean[b] D	Mean[b] S	Rank of Scale Means[c]
1. Relationships with Nature	2.5			3.4			3.6			3.4			2.8		
Scenery		2.6	8		3.5	1		3.7	1		3.4	6		3.0	5
General Nature Experience		2.4	11		3.3	3		3.5	4		3.5	4		2.6	15
2. Escape Personal-Social Pressure	3.2			3.2			3.3			3.3			3.1		
Tension Release		3.3	3		3.0	8		2.9	8		3.0	11		2.9	9
Slow Down Mentally		2.7	7		3.0	8		3.1	6		2.8	15		2.9	9
Escape Role Overloads		3.6	1		3.5	1		3.6	3		3.6	3		3.2	2
Escape Daily Routine		3.5	2		3.3	3		3.4	5		3.7	1		3.2	2
3. Family Togetherness	3.0			3.1			1.7			3.7			3.0		
Family Togetherness		3.0	4		3.1	7		1.7	31		3.7	1		3.0	5
4. Being with People	2.8			2.8			2.8			3.2			3.0		
Being with Friends		2.5	10		2.5	14		2.5	17		3.0	11		2.7	13
Being with Similar People		3.0	4		3.2	5		3.0	7		3.5	4		3.4	1
5. Security	1.4			3.0			2.6			3.3			2.9		
Social Security		1.4	23		3.0	8		2.6	15		3.3	7		2.9	9
6. Exercise/Physical Fitness	2.0			2.0			2.3			2.9			3.1		
Exercise/Physical Fitness		2.0	17		2.0	20		2.3	21		2.9	14		3.1	4
7. Physical Rest	2.6			3.2			1.8			3.2			1.6		
Physical Rest		2.6	8		3.2	5		1.8	27		3.2	9		1.6	27
8. Nostalgia	2.4			2.7			1.9			2.8			2.7		
Nostalgia		2.4	11		2.7	12		1.9	26		2.8	15		2.7	13
9. Escape Physical Pressure	1.4			2.1			2.7			3.3			2.1		
Tranquility		1.5	22		2.8	11		2.9	8		3.1	10		1.8	26
Seek Open Space		2.1	14		2.2	16		2.8	13		2.8	15		2.4	17
Privacy		.4	39		.5	39		1.8	27		1.0	39		.3	41
Escape Crowds		1.1	31		2.6	13		3.7	1		2.8	15		3.0	5
Escape Physical Stressors		1.8	19		2.2	16		2.4	18		3.0	11		2.9	9
10. Equipment	2.9			2.0			2.1			2.6			2.1		
Equipment		2.9	6		2.0	20		2.1	23		2.6	20		2.1	21
11. General Learning	1.0			2.0			2.5			2.5			1.3		
General Learning		1.0	35		2.3	15		2.9	8		2.5	21		1.2	34
Exploration		1.6	21		2.2	16		2.9	8		2.7	19		2.0	23
Geography of the Area		.2	41		1.6	27		1.8	27		2.4	26		.5	39
Learn About Nature		1.1	31		2.0	20		2.4	18		2.4	26		1.6	27

Table 8. Continued.

Recreation Experience Preferences Domain / Scale	Most Important Activity Groups									
	1 Boating (N=9)[a]			2 Camping Near Auto (N=13)[a]			3 Hikers (N=9)[a]			4 Swimmers (N=13)[a]			5 Waterskiers (N=14)[a]		
	Mean[b] D	Mean[b] S	Rank of Scale Means[c]	Mean[b] D	Mean[b] S	Rank of Scale Means[c]	Mean[b] D	Mean[b] S	Rank of Scale Means[c]	Mean[b] D	Mean[b] S	Rank of Scale Means[c]	Mean[b] D	Mean[b] S	Rank of Scale Means[c]
12. Temperature	1.3			1.8			2.0			2.5			2.4		
Temperature		1.3	25		1.8	23		2.0	24		2.5	21		2.4	17
13. Reflect on Personal Values	1.1			1.7			1.9			2.9			1.5		
Spiritual		.9	37		2.2	16		2.4	18		3.3	7		1.6	27
Introspection		1.3	25		1.2	33		1.3	33		2.5	21		1.4	31
14. Achievement	1.7			1.2			1.8			1.9			2.3		
Reinforcing Self-Image		1.3	25		1.8	23		2.3	21		2.1	30		2.1	21
Social Recognition		.8	38		.2	41		-.3	43		1.2	37		1.6	27
Skill Development		2.3	13		1.5	28		2.6	15		2.0	33		3.0	5
Competence Testing		2.1	14		.9	37		1.7	31		1.9	34		2.5	16
Seeking Stimulation		2.1	14		1.2	33		2.9	8		2.1	30		2.2	19
15. Leadership/Autonomy	1.2			1.3			1.4			1.8			1.3		
Independence		1.3	25		1.5	28		2.7	14		2.4	26		.9	36
Autonomy		1.1	31		1.2	33		1.8	27		2.1	30		1.2	34
Control Power		1.0	35		1.7	26		.7	38		2.5	21		1.9	24
Teaching-Sharing Skills		2.0	17		1.5	28		1.2	34		1.7	36		2.2	19
Leading Others		.4	39		.4	40		.6	39		.3	41		.5	39
16. Creativity	1.1			1.5			2.0			1.8			.9		
Creativity		1.5	31		1.5	28		2.0	24		1.8	35		.9	36
17. Meeting-Observing New People	1.6			1.5			.4			1.6			1.6		
Meeting New People		1.8	19		1.8	23		1.0	36		2.2	29		1.9	24
Observing Other People		1.3	25		1.2	33		-.2	42		1.1	38		1.4	31
18. Risk Taking	.9			.5			.7			.9			.3		
Risk Taking		-.1	42		-1.3	43		.4	41		-.6	42		-1.3	43
Risk Moderation		1.4	23		1.4	32		1.0	36		2.5	21		1.4	31
Risk Avoidance		1.2	30		.8	38		.6	39		.9	40		.8	38
19. Escaping Family	-.6			-.4			1.1			-.9			-.4		
Escaping Family		-.6	43		-.4	42		1.1	35		-.9	43		-.4	42

[a]Calculations for each domain and scale are based on at least the number of respondents indicated by N.

[b]Means are based on responses to a nine-point response format ranging from +4 (very strongly adds) to -4 (very strongly detracts). See Exhibit B for a more detailed presentation of activity group REP statistics.

[c]Ranks are based on mean scores, with tied scores given the same rank.

and Escape Personal Social Pressure, and the scale Seek Open Space, all show fairly consistent rankings and relatively small differences between the mean scores of the various activity groups. All other scales had a difference of at least one scale point or 10 ranks between activity groups.

The largest difference was found between hikers and boaters on the Escape Crowds scale, with rank orders of 1 and 31, and scale scores of 3.7 and 1.1, respectively. Boaters felt escaping crowds added only slightly to their satisfaction, while all other activity groups felt it strongly or most strongly added. Also, boaters generally had lower rank orders and scale scores (added less to satisfaction) on the scales General Learning, Geography of the Area, Scenery, Spiritual, Tranquility, and Social Security. Swimmers had reasonably higher ranks and scores for the scales Family Togetherness, Geography of the Area, Spiritual, and Social Security, indicating those scales added strongly to their satisfaction. Hikers scored very much lower on Family Togetherness and higher on Escaping Family, indicating that family experiences did not add as much to hikers' satisfaction as they did to other activity groups.

User Opinions About Management Actions and Conditions in the SNF

This section summarizes the results of two segments of the questionnaire which solicited users' management preferences and opinions on general conditions in the SNF. The Bass Lake recreationists were asked whether they favored or opposed 16 specific "possible management actions." Responses were recorded on a Likert-type scaled response format from +4 (very strongly favor) to -4 (very strongly oppose). A similar Likert format ranging from +3 (strongly agree) to -3 (strongly disagree) was used to measure user opinions about general conditions of the SNF.

Overall Summary of Management Action Preferences

The 12 possible management actions relevant to Bass Lake recreationists are listed in Table 9. The management items in this table are ordered from the most favored item (ranked 1) to the least favored item (ranked 12). Means, standard deviations, and rank orders are shown to summarize user preferences and response patterns. Recreationists strongly favored the present "pack out what you pack in" policy in backcountry areas. The small standard deviation for this item indicates strong consensus between respondents. The management item concerning the prohibition of camping within 100 feet of streams and lakes had the lowest mean score and the largest standard deviation (3.1), revealing a rather large degree of disagreement among respondents. All other management items were either slightly or moderately favored.

Preferences of Recreationists from Selected Activity Groups

Comparisons between the means values on the management actions of respondents belonging to one of six most important activity groups are presented in Table 10. The greatest difference of opinion was found among boaters and hikers on the possibility of providing showers and electricity in some campgrounds. Hikers felt neutral toward this possibility, whereas boaters strongly favored it, and other activity groups moderately favored the idea. In response to the possibility of retaining private recreation residences that are currently leased on forest land, hikers slightly opposed the possibility while other activity groups (except swimmers) moderately favored it. When comparing activity group mean scores for items suggesting provision of more campgrounds or picnic areas, we find that hikers and boaters favor that provision the least.

Table 9. Management item means and standard deviations for all respondents sampled at Bass Lake in the Sierra N.F. (Summer, 1979).

Possible Management Actions	Mean[a]	S.D.[b]	Rank Order[c]
Continue to emphasize the "pack out what you pack in" policy in backcountry areas.	3.6	1.2	1
Provide limited facilities (toilets and tables) at dispersed camping sites along roads.	2.2	1.8	2
Establish designated rustic (low level of development) camping sites in areas accessible by roads.	2.0	1.8	3
Establish more distance between campground campsites.	2.0	1.9	3
Provide more campgrounds.	1.8	2.1	5
Provide showers and electricity in some campgrounds.	1.6	2.5	6
Construct more hiking trails in areas outside the John Muir and Kaiser Wilderness.	1.3	2.0	7
Maintain trailless areas in which all travel must be cross country.	1.3	2.2	7
Limit the number of people in heavily used areas on the forest, outside the John Muir and Kiaser Wilderness	1.3	2.2	7
Provide more picnic areas.	1.2	2.0	10
Retain private recreation residences that are currently leased on National Forest land.	1.0	2.3	11
Prohibit camping within 100 feet of streams and lakes.	.8	3.1	12

[a]Means are based on responses to a nine-point response format ranging from +4 (very strongly favor) to -4 (very strongly oppose). Calculations for each management item are based on at least N=177 respondents.

[b]Standard deviation (S.D.) is a measure of variation in the responses around the mean score.

[c]Ranks are based on mean scores on the possible management actions, with tied scores given the same rank.

Table 10. Management item means and standard deviations for respondents sampled at Bass Lake, Sierra N.F., grouped by their most important activity (Summer, 1979).

Possible Management Actions	Boating (N=13)[a]		Camping Near Auto (N=30)[a]		Fishing (N=20)[a]		Hiking (N=17)[a]		Swimming (N=26)[a]		Waterskiing (N=31)[a]	
	Mean[b]	S.D.[c]	Mean[b]	S.D.[c]	Mean[b]	S.D.[c]	Mean[b]	S.D.[c]	Mean[b]	S.D.[c]	Mean[b]	S.D.[c]
Continue to emphasize the "pack out what you pack in" policy in backcountry areas.	3.7	1.1	3.9	.4	3.6	1.4	3.6	1.1	3.3	1.2	3.7	1.0
Provide limited facilities (toilets and tables) at dispersed camping sites along roads.	2.3	1.3	2.5	1.4	2.2	2.1	1.8	1.8	2.3	1.7	2.4	1.9
Establish designated rustic (low level of development) camping sites in areas accessible by roads.	1.8	1.3	2.3	1.7	1.9	2.2	2.2	1.6	2.4	1.6	1.9	2.3
Establish more distance between campground campsites.	1.5	2.5	2.0	1.8	1.6	2.1	2.5	1.5	2.3	1.7	1.8	2.3
Provide more campgrounds.	1.3	2.0	2.5	1.7	2.2	2.4	.8	2.8	2.3	1.7	1.9	2.2
Provide showers and electricity in some campgrounds.	3.1	1.4	2.1	2.2	2.4	1.9	.2	2.8	1.9	2.2	1.8	2.5
Construct more hiking trails in areas outside the John Muir and Kaiser Wildernesses.	1.1	1.7	.7	2.4	1.2	1.6	1.2	2.5	1.8	1.8	1.4	1.9
Maintain trailless areas in which all travel must be cross country.	1.4	1.6	-.9	2.0	.5	2.2	1.5	3.1	2.0	2.0	1.3	2.0
Limit the number of people in heavily used areas on the forest, outside the John Muir and Kaiser Wildernesses.	.4	1.3	1.2	2.2	1.1	2.7	1.8	2.6	1.2	2.2	2.0	2.1
Provide more picnic areas.	.1	1.9	1.5	1.9	1.1	2.0	.3	1.8	2.2	1.6	1.2	2.1
Retain private receration residences that are currently leased on National Forest land.	1.7	1.7	1.5	2.1	1.5	2.0	-.5	2.8	.5	2.5	1.6	2.2
Prohibit camping within 100 feet of streams and lakes.	.3	3.2	1.0	2.7	.4	3.5	1.3	3.3	1.1	3.2	0	3.3

[a]Calculations for each management item are based on at least the number of respondents indicated by N.

[b]Means are based on responses to a nine-point response format ranging from +4 (very strongly favor) to -4 (very strongly oppose).

[c]Standard deviation (S.D.) is a measure of variation in the responses around the mean score.

User Opinions Concerning General Conditions of the SNF

A +3 (strongly agree) to -3 (strongly disagree) Likert response format was used to discern user opinions about four general conditions in the SNF (Table 11). Bass Lake users moderately agreed that commerical services were adequate to meet their needs. Recreationists slightly disagreed with the statement that there were too many controls on their behavior, and were neutral concerning the effect of traffic or vandalism on the quality of their recreation experiences.

Summary

The Bass Lake sample consisted of respondents with a mean age of about 36 years, with most people (67 percent) between 26 and 50 years, and a mean educational level of almost 14 years of schooling. The largest percentage (30 percent) of respondents came from Los Angeles, with very few locals or out-of-staters (3 percent and 8 percent respectively). About half (52 percent) of the respondents had visited the area fewer than four times during the past two summers, with only 14 percent visiting over 16 times.

Respondents' most participated in activity was swimming (86 percent), with camping near auto, sightseeing, picnicking, hiking, fishing, boating, and waterskiing also receiving over 50 percent participation. Camping near auto was chosen by the greatest number of respondents as their most important activity, followed by waterskiing and swimming.

The REP scales that added most to the satisfaction of Bass Lake recreationists were the four scales describing the general concept (domain) Escape Personal-Social Pressure, both scales from the Relationship with Nature domain, and the Being with Similar People and Family Togetherness scales. The REP scales adding least to respondents' satisfaction were Risk Taking, Escaping Family and Leading Others.

Table 11. Means and standard deviations on statements regarding the sampled respondents' visits to Bass Lake, Sierra N. F. (Summer 1979).

Statements	Mean[a]	S.D.[b]
Commercial services (grocery stores, restaurants, etc.) were adequate to meet your needs	2.0	1.3
There were too many controls (regulations, signs, etc.) on your behavior by existing management actions	-.8	1.8
Vandalism or willful damage to facilities or resources was evident and reduced the quality of your recreation experience	.2	1.9
Traffic on many of the roads was too heavy and reduced the quality of your recreation	0	1.7

[a]Means are based on responses to a seven-point response format ranging from +3 = strongly agree to -3 = strongly disagree. Calculations for each statement are based on at least N=183 respondents.

[b]Standard deviation (S.D.) is a measure of variation in the responses around the mean score.

When comparing REP's of the major most important activity groups, we found many large differences in both the ranks and scores of the REP scales. Boaters had substantially lower ranks and scale scores (added less to satisfaction) on the scales Escape Crowds, General Learning, Geography of the Area, Scenery, Spiritual, Tranquility, and Social Security. Scales adding somewhat more to swimmers' satisfaction were Family Togetherness, Geography of the Area, Spiritual, and Social Security. Hikers' REP's revealed comparatively less satisfaction from Being with the Family.

The most strongly favored management action was the present "pack out what you pack in" policy in backcountry areas. The least favored management action was to prohibit camping within 100 feet of streams and lakes. All other management items were either slightly or moderately favored by the respondents.

When comparing management preferences of activity groups we find that hikers favored least (scored lowest) the provision of showers and electricity in some campgrounds, while boaters favored it the most. In addition, hikers favored somewhat less the retention of private recreation residences currently leased on national forest land. Items suggesting provision of more campgrounds and picnic areas showed hikers and boaters favoring them least.

On general conditions of the SNF, Bass Lake recreationists moderately agreed that commercial servies were adequate, slightly disagreed there were too many controls on their behavior, and were neutral concerning the effect of traffic or vandalism on the quality of their recreation experience.

EXHIBIT A

BASS LAKE, SNF QUESTIONNAIRES
(Summer, 1979)

Figure A-1
(EXIT INTERVIEW Form)

Approved
OMB No. 040-R3857
Expires June 30, 1980

VISITOR REGISTRATION

To visit (area) _____ Location of exit _____ _____

Date _____ (Time) _____ Location of entrance _____

Starting Date _____ (Time) _____ Primary method of travel _____

Number of people in group _____ (Vehicle) _____

The primary trip purpose _____ _____

How many times visited the area in the past year

___ 1) First time ___ 3) Twice ___ 5) Four times

___ 2) Once before ___ 4) Three times ___ 6) Five or more times

Using a map of the area, list all zones traversed in sequence of travel.

Travel Zones	1	2	3	4	5	6	7	8	9	10	11	12	13
# of nights in each	___	___	___	___	___	___	___	___	___	___	___	___	___
Travel Zones	14	15	16	17	18	19	20	21	22	23	24	25	26
# of nights in each	___	___	___	___	___	___	___	___	___	___	___	___	___

NAME _____

ADDRESS _____

CITY, STATE _____ ZIP _____

Completion of this form is voluntary and is not required by law or to obtain a federal benefit.

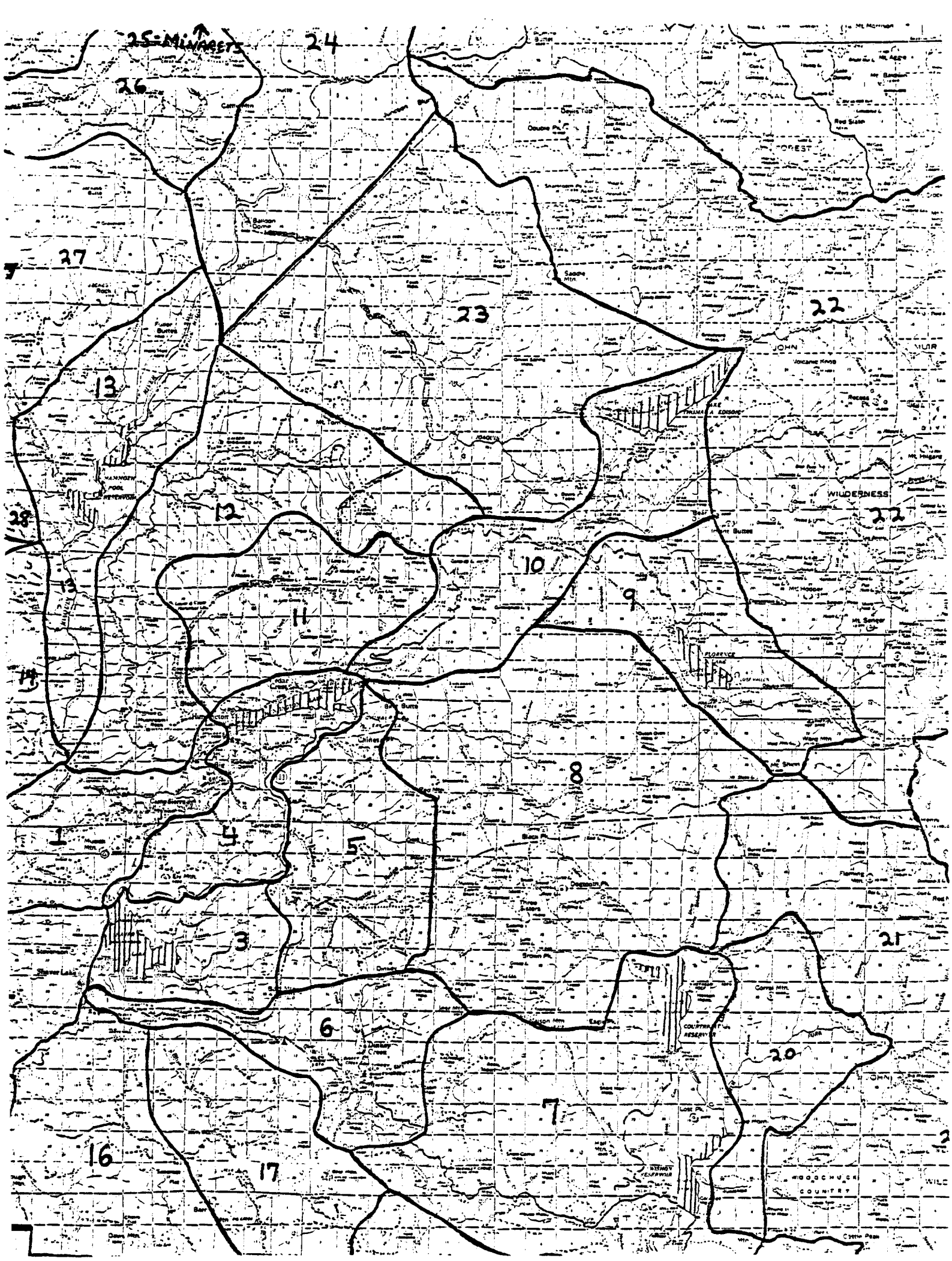

25-Minarets
24
26
27
23
22
13
12
28
10
9
11
14
8
1
4
5
3
21
6
20
7
16
17
JOHN MUIR
WILDERNESS
FOREST
FLORENCE LAKE
COURTRIGHT RESERVOIR
WISHON RESERVOIR
HIDDEN CHUCK COUNTRY

Figure A-2 (Bass Lake Buff)

This questionnaire has been designed to learn more about the recreation related preferences of the users of the Sierra National Forest and John Muir Wilderness Area.

I. Since June 1978, how many summer visits did you make to the Sierra National Forest?

One visit	2-3 visits	4-6 visits	7-15 visits	16-30 visits	Over 30 visits	I:1

II. 1. Have you visited the John Muir Wilderness Area during the past five years? ___Yes ___No ___Don't know I:2

2. Have you visited the area that is now the Kaiser Wilderness Area during the past five years?
___Yes ___No ___Don't know I:3

III. Different users prefer different types of management on the Sierra National Forest. Please circle the number which best describes how much you favor (+) or oppose (-) each of the following "Possible Management Actions" for the Sierra National Forest. Circle only one number for each possible, but not necessarily planned, management action.

Possible Management Actions	FAVOR					OPPOSE				
	Very Strongly	Strongly	Moderately	Slightly	Neutral	Slightly	Moderately	Strongly	Very Strongly	
1. Provide more campgrounds	+4	+3	+2	+1	0	-1	-2	-3	-4	I:4
2. Provide showers and electricity in some campgrounds	+4	+3	+2	+1	0	-1	-2	-3	-4	I:5
3. Establish more distance between campground campsites	+4	+3	+2	+1	0	-1	-2	-3	-4	
4. Provide more picnic areas	+4	+3	+2	+1	0	-1	-2	-3	-4	
5. Retain private recreation residences that are currently leased on National Forest land	+4	+3	+2	+1	0	-1	-2	-3	-4	
6. Establish designated rustic (low level of development) camping sites in areas accessible by roads	+4	+3	+2	+1	0	-1	-2	-3	-4	
7. Provide limited facilities (toilets and tables) at dispersed camping sites along roads	+4	+3	+2	+1	0	-1	-2	-3	-4	I:10
8. Prohibit camping within 100 ft. of streams and lakes	+4	+3	+2	+1	0	-1	-2	-3	-4	
9. Continue to emphasize the "pack out what you pack in" policy in backcountry areas*	+4	+3	+2	+1	0	-1	-2	-3	-4	
10. Construct more hiking trails in areas outside the John Muir and Kaiser Wildernesses	+4	+3	+2	+1	0	-1	-2	-3	-4	
11. Limit the number of people in heavily used areas on the forest, outside the John Muir and Kaiser Wildernesses	+4	+3	+2	+1	0	-1	-2	-3	-4	
12. Construct more trails in the John Muir Wilderness	+4	+3	+2	+1	0	-1	-2	-3	-4	I:15
13. Construct more trails in the Kaiser Wilderness	+4	+3	+2	+1	0	-1	-2	-3	-4	
14. Limit the number of people in the John Muir Wilderness at any one time for heavily used areas	+4	+3	+2	+1	0	-1	-2	-3	-4	
15. Limit the number of people in the Kaiser Wilderness at any one time for heavily used areas	+4	+3	+2	+1	0	-1	-2	-3	-4	
16. Maintain trailless areas in which all travel must be cross country	+4	+3	+2	+1	0	-1	-2	-3	-4	I:19

IV. How much do you agree or disagree with the following statements regarding your visits to the Sierra National Forest? Please place a check in the appropriate space.

Statements	AGREE			Neither Agree Nor Disagree	DISAGREE			
	Strongly	Moderately	Slightly		Slightly	Moderately	Strongly	
Commercial services (grocery stores, restaurants, etc.) were adequate to meet your needs	___	___	___	___	___	___	___	I:20
There were too many controls (regulations, signs, etc.) on your behavior by existing management actions	___	___	___	___	___	___	___	
Vandalism or willful damage to facilities or resources was evident and reduced the quality of your recreation experience	___	___	___	___	___	___	___	
Traffic on many of the roads was too heavy and reduced the quality of your recreation	___	___	___	___	___	___	___	

Please comment on any of the above statements and specify what changes in the current management of the Sierra National Forest would make your visit more enjoyable. I:24-25

If you have any questions about this study, please contact:

J. Ross Arnold
Recreation Resources
Colorado State University
Fort Collins, CO 80523

V. Please check all the activities you participated in when visiting the Sierra National Forest this past summer (Summer, 1979). 1:28-38

1. ____Sailing	6. ____Camping near auto	11. ____Motorcycling
2. ____Canoeing	7. ____Camping away from auto	12. ____Picnicking
3. ____Boating	8. ____Hiking	13. ____4-wheel driving
4. ____Swimming	9. ____Fishing	14. ____Other (please list) 1:39
5. ____Waterskiing	10. ____Sightseeing/auto driving	_____ 1:40

VI. Using the activities you checked in Question V, select one activity you spent the most time doing during your visits to the Sierra National Forest. Please list the activity in the blank:

Your Activity: _____ 1:41-42

A recreation experience is affected by many factors, some are satisfying and some are not. Imagine that you were to visit the same area next year (summer 1980) to participate in the activity you listed above. Then rate how much each of the following types of experiences would either add to (+) or detract from (-) the level of satisfaction you would probably realize from that visit. Please circle only one number for each of the 58 items.

Experiences	EFFECT ON SATISFACTION: ADDS TO — Most Strongly	Strongly	Moderately	Slightly	Neutral	DETRACTS FROM — Slightly	Moderately	Strongly	Most Strongly	
1. Taking it easy physically	+4	+3	+2	+1	0	-1	-2	-3	-4	
2. Being in a natural setting	+4	+3	+2	+1	0	-1	-2	-3	-4	
3. Gaining a sense of self-confidence	+4	+3	+2	+1	0	-1	-2	-3	-4	1:43
4. Doing something with your family	+4	+3	+2	+1	0	-1	-2	-3	-4	
5. Experiencing peace and calm	+4	+3	+2	+1	0	-1	-2	-3	-4	1:46
6. Viewing the scenery	+4	+3	+2	+1	0	-1	-2	-3	-4	
7. Getting away from the usual demands of life	+4	+3	+2	+1	0	-1	-2	-3	-4	
8. Being near considerate people	+4	+3	+2	+1	0	-1	-2	-3	-4	
9. Developing your knowledge of things there	+4	+3	+2	+1	0	-1	-2	-3	-4	
10. Having a change from your daily routine	+4	+3	+2	+1	0	-1	-2	-3	-4	1:50
11. Being close to nature	+4	+3	+2	+1	0	-1	-2	-3	-4	
12. Using your equipment	+4	+3	+2	+1	0	-1	-2	-3	-4	
13. Developing personal spiritual values	+4	+3	+2	+1	0	-1	-2	-3	-4	
14. Being with others who enjoy the same thing you do	+4	+3	+2	+1	0	-1	-2	-3	-4	
15. Feeling isolated	+4	+3	+2	+1	0	-1	-2	-3	-4	1:55
16. Feeling your independence	+4	+3	+2	+1	0	-1	-2	-3	-4	
17. Thinking about good times you've had in the past	+4	+3	+2	+1	0	-1	-2	-3	-4	
18. Becoming better at it	+4	+3	+2	+1	0	-1	-2	-3	-4	
19. Being away from the family for a while	+4	+3	+2	+1	0	-1	-2	-3	-4	
20. Experiencing open space	+4	+3	+2	+1	0	-1	-2	-3	-4	1:60
21. Being with other members of your group	+4	+3	+2	+1	0	-1	-2	-3	-4	
22. Being your own boss	+4	+3	+2	+1	0	-1	-2	-3	-4	
23. Being away from crowds of people	+4	+3	+2	+1	0	-1	-2	-3	-4	
24. Getting exercise	+4	+3	+2	+1	0	-1	-2	-3	-4	
25. Experiencing new and different things	+4	+3	+2	+1	0	-1	-2	-3	-4	1:65
26. Relaxing physically	+4	+3	+2	+1	0	-1	-2	-3	-4	
27. Thinking about your personal values	+4	+3	+2	+1	0	-1	-2	-3	-4	
28. Testing your abilities	+4	+3	+2	+1	0	-1	-2	-3	-4	
29. Experiencing tranquility	+4	+3	+2	+1	0	-1	-2	-3	-4	
30. Viewing the scenic beauty	+4	+3	+2	+1	0	-1	-2	-3	-4	1:70
31. Leading other people	+4	+3	+2	+1	0	-1	-2	-3	-4	2:1
32. Bringing your family closer together	+4	+3	+2	+1	0	-1	-2	-3	-4	
33. Learning about the topography of the land	+4	+3	+2	+1	0	-1	-2	-3	-4	
34. Being creative	+4	+3	+2	+1	0	-1	-2	-3	-4	
35. Discovering something new	+4	+3	+2	+1	0	-1	-2	-3	-4	2:6
36. Showing others you can do it	+4	+3	+2	+1	0	-1	-2	-3	-4	
37. Being with friends	+4	+3	+2	+1	0	-1	-2	-3	-4	
38. Being on your own	+4	+3	+2	+1	0	-1	-2	-3	-4	
39. Chancing dangerous situations	+4	+3	+2	+1	0	-1	-2	-3	-4	
40. Experiencing excitement	+4	+3	+2	+1	0	-1	-2	-3	-4	2:10
41. Enjoying the sounds and smells of nature	+4	+3	+2	+1	0	-1	-2	-3	-4	
42. Releasing or reducing some built-up tensions	+4	+3	+2	+1	0	-1	-2	-3	-4	
43. Observing other people in the area	+4	+3	+2	+1	0	-1	-2	-3	-4	
44. Developing your skills and abilities	+4	+3	+2	+1	0	-1	-2	-3	-4	
45. Being alone	+4	+3	+2	+1	0	-1	-2	-3	-4	2:15
46. Thinking about who you are	+4	+3	+2	+1	0	-1	-2	-3	-4	
47. Being in control of things that happen	+4	+3	+2	+1	0	-1	-2	-3	-4	
48. Being away from noise back home	+4	+3	+2	+1	0	-1	-2	-3	-4	
49. Meeting other people in the area	+4	+3	+2	+1	0	-1	-2	-3	-4	
50. Keeping physically fit	+4	+3	+2	+1	0	-1	-2	-3	-4	2:20
51. Learning more about nature	+4	+3	+2	+1	0	-1	-2	-3	-4	
52. Giving your mind a rest	+4	+3	+2	+1	0	-1	-2	-3	-4	
53. Sharing what you have learned with others	+4	+3	+2	+1	0	-1	-2	-3	-4	
54. Experiencing solitude	+4	+3	+2	+1	0	-1	-2	-3	-4	
55. Experiencing feelings of exhilaration	+4	+3	+2	+1	0	-1	-2	-3	-4	2:25
56. Having more agreeable temperatures	+4	+3	+2	+1	0	-1	-2	-3	-4	
57. Avoiding the unexpected	+4	+3	+2	+1	0	-1	-2	-3	-4	
58. Being near others who could help you if you need them	+4	+3	+2	+1	0	-1	-2	-3	-4	2:29

VII. People participating in recreational activities prefer different environmental features. If you were participating in the activity you listed in Question VI, which feature from the following lists would you prefer the most? Please consider each list separately and check (✓) the most preferred feature. For example, for List I check which condition about motor venicle use you prefer the most when participating in your activity.

List 1: (Amount of motorized use permitted)

- Motor vehicles are permitted anywhere in the area _____ 2:31
- Motor vehicles are allowed on main roads and many designated backcountry trails and roads _____
- Motor vehicles are allowed on main roads and on a few designated backcountry trails and roads _____
- Motor vehicles are permitted only on main roads in the area _____
- Motor vehicles are not permitted _____ 2:35

List 2: (Density of users on trails)

- Extremely high number of contacts (over 20 parties/day) with other users on trails _____
- High number of contacts (11-20 parties/day) on trails _____
- Moderate number of contacts (5-10 parties/day) on trails _____
- Low number of contacts (2-4 parties/day) on trails _____
- Very low number of contacts (less than 2 parties/day) with other users on trails _____ 2:40

List 3: (Density of users off trails; at picnicking, camping and other areas)

- Extremely high number of contacts (over 20 parties/day) with other users off trails _____
- High number of contacts (11-20 parties/day) with users off trails _____
- Moderate number of contacts (5-10 parties/day) with users off trails _____
- Low number of contacts (2-4 parties/day) with users off trails _____
- Very low number of contacts (less than 2 parties/day) with other users off trails _____ 2:45

List 4: (Evidence of past users)

- Evidence of past users is just about everywhere _____
- Occasional evidence of past users is found _____
- Evidence of past users is hardly ever found _____

List 5: (Remoteness)

- All of the area is near developed roads _____
- Most of the area is near developed roads, but a little of it is remote _____ 2:50
- Most of the area is at least ½ mile from developed roads, but a little of it is near developed roads _____
- Nearly all the area is remote; there are a few developed roads which are far apart _____

List 6: (Natural environment)

- Environment is hig ly modified from natural by human developments _____
- Environment is moderately modified from natural by human developments _____
- Environment is predominantly unmodified from natural _____ 2:55
- Environment is unmodified by man except for foot trails _____

List 7: (Control or regulation of users)

- Managed with high degree of control or regulation of users _____
- Managed with moderate control or regulation of users _____
- Managed with little control or regulation of users _____
- Managed without any control or regulation of users _____ 2:60

List 8: (Facilities)

- Many modern, high standard and generally large facilities are provided for users _____
- Some, but not many, modern and high standard facilities are provided _____
- Several rustic facilities are provided but no modern, high standard ones _____
- Only a very few rustic facilities are provided _____
- Area has no developed facilities _____ 3:05

List 9: (Other resource uses)

- Resource uses (including timbering, grazing, mineral and water developments) are common _____
- Resource uses like timbering and grazing are evident but are not common _____
- Resource uses like timbering and grazing do exist but are not very evident _____
- There is no evidence of other resource uses _____ 3:10

VIII. We ask this question to determine if people living and working under different conditions have different recreation preferences. Some words and phrases are used below to describe different types of work and neighborhood environments. The seven spaces provided define a range between the labeled end-points. Please check one position on each scale which best describes your neighborhood or work condition.

Neighborhood Conditions

(by neighborhood we mean your home or apartment and what you see or hear near it)

Friendly place to live	___	___	___	___	___	___	___	Unfriendly place to live	3:1
Too many people	___	___	___	___	___	___	___	Not too many people	
Much open, green space	___	___	___	___	___	___	___	Little open, green space	
Poorly kept up	___	___	___	___	___	___	___	Well kept up	
Clean air	___	___	___	___	___	___	___	Polluted air	3:5
Too many houses	___	___	___	___	___	___	___	Not too many houses	
Attractive buildings	___	___	___	___	___	___	___	Unattractive buildings	
Noisy	___	___	___	___	___	___	___	Quiet	

Work Conditions

Mentally exhausting	___	___	___	___	___	___	___	Not mentally exhausting	
Physically exhausting	___	___	___	___	___	___	___	Not physically exhausting	3:10
Not usually boring	___	___	___	___	___	___	___	Usually boring	
Low pressure job	___	___	___	___	___	___	___	High pressure job	
Challenging	___	___	___	___	___	___	___	Not challenging	
Work closely with others	___	___	___	___	___	___	___	Mostly work alone	
Not interesting	___	___	___	___	___	___	___	Very interesting	3:15
Usually hectic	___	___	___	___	___	___	___	Not usually hectic	

IX. 1. Please check (✓) whether or not you thought each of the following areas were socially overcrowded or ecologically overused.

CONDITION	John Muir Wilderness		Kaiser Wilderness		Non-Wilderness Backcountry Areas		Huntington Lake Campgrounds		
	Yes	No	Yes	No	Yes	No	Yes	No	
Socially Overcrowded									3:17-20
Ecologically Overused									3:21-24

2. For each area, please give your estimate of the maximum number that should be allowed for each of the following conditions (people per party, pack and saddle animals per party, vehicles per party, and total days a party is allowed to camp in any one area). Place that number in the box under each area corresponding to each listed condition. If you don't think any maximum number should be set, write NONE in the appropriate box.

CONDITION	John Muir Wilderness	Kaiser Wilderness	Non-Wilderness Backcountry Areas	Huntington Lake Campgrounds	
People/party					3:25-28
Pack and saddle animals/party					3:29-32
Vehicles/party	NOT ALLOWED	NOT ALLOWED			3:33-36
Total days a party is allowed to camp in any one area					3:37-40

X. We know that users with different characteristics and backgrounds have different preferences. For that reason, we would appreciate your answering the following, more personal questions.

1. Your sex? _____Male _____Female 3:41
2. What is your present age? _____ 3:42-43
3. What is the highest year of formal schooling you have completed? (Please circle only one.) 3:44-45

Elementary	1	2	3	4	5	6	7	8
High school or vocational school	9	10	11	12				
College or technical school	13	14	15	16				
Post graduate school	17	18	19	20	21	22		

4. Which group best describes your cultural background? 3:46
   ____Indian ____Hispanic ____Oriental ____White ____Black ____Other
5. Please check any of the following if you think they reflect special recreation needs you have. Please describe those needs briefly. 3:47
   ____Handicapped ____Retired ____Other ____Describe: _____
6. Population of the community where you live: 3:48
   ____500,000 or more ____25,000-100,000 ____Below 5,000
   ____100,000-500,000 ____5,000-25,000 ____Rural
7. What is the zip code of your permanent address? ___ ___ ___ ___ ___ 3:49-53

THANK YOU FOR YOUR HELP! CSU Project #31-1480

Figure A-3 (Bass Lake Yellow)

This questionnaire has been designed to learn more about the recreation related preferences of the users of the Sierra National Forest and John Muir Wilderness Area.

I. Since June 1978, how many summer visits did you make to the Sierra National Forest?

One visit	2-3 visits	4-6 visits	7-15 visits	16-30 visits	Over 30 visits	I:1

II. 1. Have you visited the John Muir Wilderness Area during the past five years? ___Yes ___No ___Don't know I:2

2. Have you visited the area that is now the Kaiser Wilderness Area during the past five years?

___Yes ___No ___Don't know I:3

III. Different users prefer different types of management on the Sierra National Forest. Please circle the number which best describes how much you favor (+) or oppose (-) each of the following "Possible Management Actions" for the Sierra National Forest. Circle only one number for each possible, but not necessarily planned, management action.

Possible Management Actions	FAVOR					OPPOSE				
	Very Strongly	Strongly	Moderately	Slightly	Neutral	Slightly	Moderately	Strongly	Very Strongly	
1. Provide more campgrounds	+4	+3	+2	+1	0	-1	-2	-3	-4	I:4
2. Provide showers and electricity in some campgrounds	+4	+3	+2	+1	0	-1	-2	-3	-4	I:5
3. Establish more distance between campground campsites	+4	+3	+2	+1	0	-1	-2	-3	-4	
4. Provide more picnic areas	+4	+3	+2	+1	0	-1	-2	-3	-4	
5. Retain private recreation residences that are currently leased on National Forest land	+4	+3	+2	+1	0	-1	-2	-3	-4	
6. Establish designated rustic (low level of development) camping sites in areas accessible by roads	+4	+3	+2	+1	0	-1	-2	-3	-4	
7. Provide limited facilities (toilets and tables) at dispersed camping sites along roads	+4	+3	+2	+1	0	-1	-2	-3	-4	I:10
8. Prohibit camping within 100 ft. of streams and lakes	+4	+3	+2	+1	0	-1	-2	-3	-4	
9. Continue to emphasize the "pack out what you pack in" policy in backcountry areas	+4	+3	+2	+1	0	-1	-2	-3	-4	
10. Construct more hiking trails in areas outside the John Muir and Kaiser Wildernesses	+4	+3	+2	+1	0	-1	-2	-3	-4	
11. Limit the number of people in heavily used areas on the forest, outside the John Muir and Kaiser Wildernesses	+4	+3	+2	+1	0	-1	-2	-3	-4	
12. Construct more trails in the John Muir Wilderness	+4	+3	+2	+1	0	-1	-2	-3	-4	I:15
13. Construct more trails in the Kaiser Wilderness	+4	+3	+2	+1	0	-1	-2	-3	-4	
14. Limit the number of people in the John Muir Wilderness at any one time for heavily used areas	+4	+3	+2	+1	0	-1	-2	-3	-4	
15. Limit the number of people in the Kaiser Wilderness at any one time for heavily used areas	+4	+3	+2	+1	0	-1	-2	-3	-4	
16. Maintain trailless areas in which all travel must be cross country	+4	+3	+2	+1	0	-1	-2	-3	-4	I:19

IV. How much do you agree or disagree with the following statements regarding your visits to the Sierra National Forest? Please place a check in the appropriate space.

Statements	AGREE			Neither Agree Nor Disagree	DISAGREE			
	Strongly	Moderately	Slightly		Slightly	Moderately	Strongly	
Commercial services (grocery stores, restaurants, etc.) were adequate to meet your needs	___	___	___	___	___	___	___	I:20
There were too many controls (regulations, signs, etc.) on your behavior by existing management actions	___	___	___	___	___	___	___	
Vandalism or willful damage to facilities or resources was evident and reduced the quality of your recreation experience	___	___	___	___	___	___	___	
Traffic on many of the roads was too heavy and reduced the quality of your recreation	___	___	___	___	___	___	___	

Please comment on any of the above statements and specify what changes in the current management of the Sierra National Forest would make your visit more enjoyable. I:24-25

_____

_____

_____

If you have any questions about this study, please contact:

J. Ross Arnold
Recreation Resources
Colorado State University
Fort Collins, CO 80523

V. Please check all the activities you participated in when visiting the Sierra National Forest this past summer (Summer, 1979). 1:28-38

1. ____Sailing
2. ____Canoeing
3. ____Boating
4. ____Swimming
5. ____Waterskiing
6. ____Camping near auto
7. ____Camping away from auto
8. ____Hiking
9. ____Fishing
10. ____Sightseeing/auto driving
11. ____Motorcycling
12. ____Picnicking
13. ____4-wheel driving
14. ____Other (please list) 1:39

_____ 1:40

VI. Using the activities you checked in Question V, select one activity you spent the most time doing during your visits to the Sierra National Forest. Please list the activity in the blank.

Your Activity: _____ 1:41-42

People engage in outdoor recreation for a variety of reasons. Imagine that you were to visit the same area next year (summer 1980) to participate in the activity you listed above. Then rate how important each item listed below would be to you as a reason for participating in that activity. Please check (✓) only one box for each of the 58 reasons.

Reasons	IMPORTANCE: Not Important	Of A Little Importance	Somewhat Important	Moderately Important	Very Important	Extremely Important	
1. Taking it easy physically							
2. Being in a natural setting							
3. Gaining a sense of self-confidence							1:43
4. Doing something with your family							
5. Experiencing peace and calm							1:45
6. Viewing the scenery							
7. Getting away from the usual demands of life							
8. Being near considerate people							
9. Developing your knowledge of things there							
10. Having a change from your daily routine							1:50
11. Being close to nature							
12. Using your equipment							
13. Developing personal spiritual values							
14. Being with others who enjoy the same thing you do							
15. Feeling isolated							1:55
16. Feeling your independence							
17. Thinking about good times you've had in the past							
18. Becoming better at it							
19. Being away from the family for a while							
20. Experiencing open space							1:60
21. Being with other members of your group							
22. Being your own boss							
23. Being away from crowds of people							
24. Getting exercise							
25. Experiencing new and different things							1:65
26. Relaxing physically							
27. Thinking about your personal values							
28. Testing your abilities							
29. Experiencing tranquility							
30. Viewing the scenic beauty							1:70
31. Leading other people							2:1
32. Bringing your family closer together							
33. Learning about the topography of the land							
34. Being creative							
35. Discovering something new							2:6
36. Showing others you can do it							
37. Being with friends							
38. Being on your own							
39. Chancing dangerous situations							
40. Experiencing excitement							2:10
41. Enjoying the sounds and smells of nature							
42. Releasing or reducing some built-up tensions							
43. Observing other people in the area							
44. Developing your skills and abilities							
45. Being alone							2:15
46. Thinking about who you are							
47. Being in control of things that happen							
48. Being away from noise back home							
49. Meeting other people in the area							
50. Keeping physically fit							2:20
51. Learning more about nature							
52. Giving your mind a rest							
53. Sharing what you have learned with others							
54. Experiencing solitude							
55. Experiencing feelings of exhilaration							2:25
56. Having more agreeable temperatures							
57. Avoiding the unexpected							
58. Being near others who could help you if you need them							2:29

VII. People participating in recreational activities prefer different environmental features. If you were participating in the activity you listed in Question VI, which feature from the following lists would you prefer the most? Please consider each list separately and check (✓) the most preferred feature. For example, for List I check which condition about motor vehicle use you prefer the most when participating in your activity.

List 1: (Amount of motorized use permitted)

- Motor vehicles are permitted anywhere in the area _____ 2:31
- Motor vehicles are allowed on main roads and many designated backcountry trails and roads _____
- Motor vehicles are allowed on main roads and on a few designated backcountry trails and roads _____
- Motor vehicles are permitted only on main roads in the area _____
- Motor vehicles are not permitted _____ 2:35

List 2: (Density of users on trails)

- Extremely high number of contacts (over 20 parties/day) with other users on trails _____
- High number of contacts (11-20 parties/day) on trails _____
- Moderate number of contacts (5-10 parties/day) on trails _____
- Low number of contacts (2-4 parties/day) on trails _____
- Very low number of contacts (less than 2 parties/day) with other users on trails _____ 2:40

List 3: (Density of users off trails; at picnicking, camping and other areas)

- Extremely high number of contacts (over 20 parties/day) with other users off trails _____
- High number of contacts (11-20 parties/day) with users off trails _____
- Moderate number of contacts (5-10 parties/day) with users off trails _____
- Low number of contacts (2-4 parties/day) with users off trails _____
- Very low number of contacts (less than 2 parties/day) with other users off trails _____ 2:45

List 4: (Evidence of past users)

- Evidence of past users is just about everywhere _____
- Occasional evidence of past users is found _____
- Evidence of past users is hardly ever found _____

List 5: (Remoteness)

- All of the area is near developed roads _____
- Most of the area is near developed roads, but a little of it is remote _____ 2:50
- Most of the area is at least ½ mile from developed roads, but a little of it is near developed roads _____
- Nearly all the area is remote; there are a few developed roads which are far apart _____

List 6: (Natural enviro ent)

- Environment is highly modified from natural by human developments _____
- Environment is moderately modified from natural by human developments _____
- Environment is predominantly unmodified from natural _____ 2:55
- Environment is unmodified by man except for foot trails _____

List 7: (Control or regulation of users)

- Managed with high degree of control or regulation of users _____
- Managed with moderate control or regulation of users _____
- Managed with little control or regulation of users _____
- Managed without any control or regulation of users _____ 2:60

List 8: (Facilities)

- Many modern, high standard and generally large facilities are provided for users _____
- Some, but not many, modern and high standard facilities are provided _____
- Several rustic facilities are provided but no modern, high standard ones _____
- Only a very few rustic facilities are provided _____
- Area has no developed facilities _____ 2:65

List 9: (Other resource uses)

- Resource uses (including timbering, grazing, mineral and water developments) are common _____
- Resource uses like timbering and grazing are evident but are not common _____
- Resource uses like timbering and grazing do exist but are not very evident _____
- There is no evidence of other resource uses _____ 2:69

VIII. We ask this question to determine if people living and working under different conditions have different recreation preferences. Some words and phrases are used below to describe different types of work and neighborhood environments. The seven spaces provided define a range between the labeled end-points. Please check one position on each scale which best describes your neighborhood or work condition.

Neighborhood Conditions

(by neighborhood we mean your home or apartment and what you see or hear near it)

Friendly place to live	___	___	___	___	___	___	___	Unfriendly place to live
Too many people	___	___	___	___	___	___	___	Not too many people
Much open, green space	___	___	___	___	___	___	___	Little open, green space
Poorly kept up	___	___	___	___	___	___	___	Well kept up
Clean air	___	___	___	___	___	___	___	Polluted air
Too many houses	___	___	___	___	___	___	___	Not too many houses
Attractive buildings	___	___	___	___	___	___	___	Unattractive buildings
Noisy	___	___	___	___	___	___	___	Quiet

Work Conditions

Mentally exhausting	___	___	___	___	___	___	___	Not mentally exhausting
Physically exhausting	___	___	___	___	___	___	___	Not physically exhausting
Not usually boring	___	___	___	___	___	___	___	Usually boring
Low pressure job	___	___	___	___	___	___	___	High pressure job
Challenging	___	___	___	___	___	___	___	Not challenging
Work closely with others	___	___	___	___	___	___	___	Mostly work alone
Not interesting	___	___	___	___	___	___	___	Very interesting
Usually hectic	___	___	___	___	___	___	___	Not usually hectic

IX. 1. Please check (✓) whether or not you thought each of the following areas were socially overcrowded or ecologically overused.

CONDITION	John Muir Wilderness		Kaiser Wilderness		Non-Wilderness Backcountry Areas		Huntington Lake Campgrounds	
	Yes	No	Yes	No	Yes	No	Yes	No
Socially Overcrowded								
Ecologically Overused								

2. For each area, please give your estimate of the maximum number that should be allowed for each of the following conditions (people per party, pack and saddle animals per party, vehicles per party, and total days a party is allowed to camp in any one area). Place that number in the box under each area corresponding to each listed condition. If you don't think any maximum number should be set, write NONE in the appropriate box.

CONDITION	John Muir Wilderness	Kaiser Wilderness	Non-Wilderness Backcountry Areas	Huntington Lake Campgrounds
People/party				
Pack and saddle animals/party				
Vehicles/party	NOT ALLOWED	NOT ALLOWED		
Total days a party is allowed to camp in any one area				

X. We know that users with different characteristics and backgrounds have different preferences. For that reason, we would appreciate your answering the following, more personal questions.

1. Your sex? ____Male ____Female
2. What is your present age? _____
3. What is the highest year of formal schooling you have completed? (Please circle only one.)

Elementary	1	2	3	4	5	6	7	8
High school or vocational school	9	10	11	12				
College or technical school	13	14	15	16				
Post graduate school	17	18	19	20	21	22		

4. Which group best describes your cultural background?
   ____Indian ____Hispanic ____Oriental ____White ____Black ____Other
5. Please check any of the following if you think they reflect special recreation needs you have. Please describe those needs briefly.
   ____Handicapped ____Retired ____Other ____Describe: _____
6. Population of the community where you live:
   ____500,000 or more ____25,000-100,000 ____Below 5,000
   ____100,000-500,000 ____5,000-25,000 ____Rural
7. What is the zip code of your permanent address? ___ ___ ___ ___ ___

Table A-1. Recreation experience preference domains, scales (designated by numbers), and items (designated by lower case letters) used in the Bass Lake, Sierra N.F., study (Summer, 1979).

Domain A: Achievement

1. Reinforcing Self Image
   a. Gaining a sense of self-confidence.
2. Social Recognition
   a. Showing others you can do it.
3. Skill Development
   a. Becoming better at it.
   b. Developing your skills and abilities.
4. Competence Testing
   a. Testing your abilities.
5. Seeking Stimulation
   a. Experiencing excitement.
   b. Experiencing feelings of exhilaration.

Domain B: Leadership/Autonomy

1. Independence
   a. Feeling your independence.
   b. Being on your own.
2. Autonomy
   a. Being your own boss.
3. Control Power
   a. Being in control of things that happen.
4. Teaching-Sharing Skills
   a. Sharing what you have learned with others.
5. Leading Others
   a. Leading other people.

Domain C: Risk Taking

1. Risk Taking
   a. Chancing dangerous situations.
2. Risk Moderation
   a. Being near others who could help you if you need them.
3. Risk Avoidance
   a. Avoiding the unexpected.

Domain D: Equipment

1. Equipment
    a. Using your equipment.

Domain E: Family Togetherness

1. Family Togetherness
    a. Doing something with your family.
    b. Bringing your family closer together.

Domain F: Being with People

1. Being with Friends
    a. Being with other members of your group.
    b. Being with friends.
2. Being with Similar People
    a. Being with others who enjoy the same thing you do.

Domain G: Meeting-Observing New People

1. Meeting New People
    a. Meeting other people in the area.
2. Observing Other People
    a. Observing other people in the area.

Domain H: General Learning

1. General Learning
    a. Developing your knowledge of things there.
2. Exploration
    a. Experiencing new and different things.
    b. Discovering something new.
3. Geography of Area
    a. Learning about the topography of the land.
4. Learn about Nature
    a. Learning more about nature.

Domain I: Relationships with Nature

1. Scenery
    a. Viewing the scenery.
    b. Viewing the scenic beauty.

2. General Nature Experience
    a. Being close to nature.
    b. Enjoying the sounds and smells of nature.

Domain J: Reflect on Personal Values
1. Spiritual
    a. Developing personal spiritual values.
2. Introspection
    a. Thinking about your personal values.
    b. Thinking about who you are.

Domain K: Creativity
1. Creativity
    a. Being creative.

Domain L: Nostalgia
1. Nostalgia
    a. Thinking about good times you've had in the past.

Domain M: Exercise/Physical Fitness
1. Exercise/Physical Fitness
    a. Getting exercise.
    b. Keeping physically fit.

Domain N: Physical Rest
1. Physical Rest
    a. Relaxing physically.

Domain O: Escape Personal-Social Pressure
1. Tension Release
    a. Releasing or reducing some built-up tensions.
2. Slow Down Mentally
    a. Giving you mind a rest.
3. Escape Role Overloads
    a. Getting away from the usual demands of life.
4. Escape Daily Routine
    a. Having a change from your daily routine.

Domain P: Escape Physical Pressure

1. Tranquility
    a. Experiencing tranquility.
    b. Experiencing solitude.
    c. Experiencing peace and calm.
2. Seek Open Space
    a. Experiencing open space.
3. Privacy
    a. Feeling isolated.
    b. Being alone.
4. Escape Crowds
    a. Being away from crowds of people.
5. Escape Physical Stressors
    a. Being away from noise back home.

Domain Q: Security

1. Social Security
    a. Being near considerate people.

Domain R: Escaping Family

1. Escaping Family
    a. Being away from the family for awhile.

Domain S: Temperature

1. Temperature
    a. Having more agreeable temperatures.

EXHIBIT B

RECREATION EXPERIENCE PREFERENCES

Table B-1. Recreation experience preference domain (D), scale (S), and item (I) means for those respondents sampled at Bass Lake, Sierra N.F., using the "adds to - detracts from satisfaction" response format

Recreation Experience Preferences Domain Scale Item	Total Sample (N=86)[a] Mean[b] D	S	I	S.D.[c]
1. Achievement	1.7			1.7
Reinforcing Self Image		1.9		1.6
Gaining a sense of self confidence.			1.9	1.6
Social Recognition		.7		2.0
Showing others you can do it.			.7	2.0
Skill Development		2.0		1.6
Becoming better at it.			2.3	1.5
Developing your skills and abilities.			1.8	1.7
Competence Testing		1.7		1.5
Testing your abilities.			1.7	1.5
Seeking Stimulation		2.0		1.8
Experiencing excitement.			1.9	1.9
Experiencing feelings of exhilaration.			2.1	1.7
2. Leadership/Autonomy	1.4			1.6
Independence		1.6		1.9
Feeling your independence.			1.9	1.8
Being on your own.			1.3	2.0
Autonomy		1.5		1.6
Being your own boss.			1.5	1.6
Control Power		1.5		1.5
Being in control of things that happen.			1.5	1.5
Teaching-Sharing Skills		1.7		1.6
Sharing what you have learned with others.			1.7	1.6
Leading Others		.5		1.6
Leading other people.			.5	1.6
3. Risk Taking	.5			2.0
Risk Taking		-.6		2.4
Chancing dangerous situations.			-.6	2.4
Risk Moderation		1.3		1.9
Being near others who could help you if you them.			1.3	1.9
Risk Avoidance		.7		1.7
Avoiding the unexpected.			.7	1.7
4. Equipment	2.1			1.7
Equipment		2.1		1.7
Using your equipment.			2.1	1.7
5. Family Togetherness	2.9			1.4
Family Togetherness		2.9		1.4
Doing something with your family.			3.2	1.2
Bring your family closer together.			2.6	1.5

Table B-1. Continued.

	Recreation Experience Preferences Domain Scale Item	Total Sample (N=86)[a] Mean[b] D	S	I	S.D.[c]
6.	Being with People	2.7			1.5
	Being with Friends		2.5		1.5
	Being with other members of your group.			2.4	1.6
	Being with friends.			2.6	1.5
	Being with Similar People		3.0		1.4
	Being with others who enjoy the same thing you do.			3.0	1.4
7.	Meeting-Observing New People	1.2			2.0
	Meeting New People		1.5		1.9
	Meeting other people in the area.			1.5	1.9
	Observing Other People		.9		2.0
	Observing other people in the area.			.9	2.0
8.	General Learning	2.0			1.5
	General Learning		2.2		1.4
	Developing your knowledge of things there.			2.2	1.4
	Exploration		2.4		1.3
	Experiencing new and different things.			2.6	1.2
	Discovering something new.			2.1	1.4
	Geography of Area		1.4		1.7
	Learning about the topography of the land.			1.4	1.7
	Learn About Nature		2.0		1.6
	Learning more about nature.			2.0	1.6
9.	Relationships with Nature	3.3			1.0
	Scenery		3.3		.9
	Viewing the scenery.			3.3	.9
	Viewing the scenic beauty.			3.4	.9
	General Nature Experience		3.2		1.0
	Being close to nature.			3.2	1.0
	Enjoying the sounds and smells of nature.			3.2	1.0
10.	Reflect on Personal Values	1.8			1.7
	Spiritual		2.0		1.8
	Developing personal spiritual values.			2.0	1.8
	Introspection		1.5		1.7
	Thinking about your personal values.			1.8	1.5
	Thinking about who you are.			1.2	1.8
11.	Creativity	1.4			1.5
	Creativity		1.4		1.5
	Being creative.			1.4	1.5
12.	Nostalgia	2.4			1.5
	Nostalgia		2.4		1.5
	Thinking about good times you've had in the past.			2.4	1.5

Table B-1. Continued.

	Recreation Experience Preferences Domain Scale Item	Total Sample (N=86)[a] Mean[b] D	S	I	S.D.
13.	Exercise/Physical Fitness	2.5			1.4
	Exercise/Physical Fitness		2.5		1.4
	Getting exercise.			2.8	1.3
	Keeping physically fit.			2.3	1.6
14.	Physical Rest	2.5			1.8
	Physical Rest		2.5		1.8
	Relaxing physically.			2.5	1.8
15.	Escape Personal-Social Pressure	3.2			1.0
	Tension Release		3.0		1.2
	Releasing or reducing some built-up tensions.			3.0	1.2
	Slow Down Mentally		2.9		1.1
	Giving your mind a rest.			2.9	1.1
	Escape Role Overloads		3.5		.7
	Getting away from the usual demands of life.			3.5	.7
	Escape Daily Routine		3.3		1.0
	Having a change from your daily routine.			3.3	1.0
16.	Escape Physical Pressure	2.3			1.7
	Tranquility		2.6		1.5
	Experiencing tranquility.			2.7	1.3
	Experiencing solitude.			1.7	2.1
	Experiencing peace and calm.			3.3	1.1
	Seek Open Space		2.7		1.4
	Experiencing open space.			2.7	1.4
	Privacy		.9		2.3
	Feeling isolated.			.9	2.4
	Being alone.			.8	2.2
	Escape Crowds		2.7		1.6
	Being away from crowds of people.			2.7	1.6
	Escape Physical Stressors		2.6		1.6
	Being away from noise back home.			2.6	1.6
17.	Security	2.6			1.6
	Social Security		2.6		1.6
	Being near considerate people.			2.6	1.6
18.	Escaping Family	-.2			2.2
	Escaping Family		-.2		2.2
	Being away from the family for awhile.			-.2	2.2
19.	Temperature	1.9			1.6
	Temperature		1.9		1.6
	Having more agreeable temperatures.			1.9	1.6

[a]Means are based on a nine-point response format ranging from +4 (very strongly adds) to -4 (very strongly detracts).

[b]Standard deviations for multiple-item scales are computed by averaging the standard deviations of the items within that scale. Standard deviations for multiple scale domains are computed by averaging the standard deviations of the scales within that domain.

Table B-2. Recreation experience preference domain (D), scale (S), and item (I) means for those respondents sampled at Bass Lake, Sierra N.F., using the "importance rating" response format (Summer, 1979).

Recreation Experience Preferences	Total Sample			
Domain Scale Item	Mean[a]			S.D.[b]
	D	S	I	
1. Achievement	3.3			1.7
Reinforcing a Self Image		3.4		1.8
Gaining a sense of self confidence.			3.4	1.8
Social Recognition		2.4		1.6
Showing others you can do it.			2.4	1.6
Skill Development		3.7		1.6
Becoming better at it.			3.8	1.6
Developing your skills and abilities.			3.5	1.6
Competence Testing		3.5		1.7
Testing your abilities.			3.5	1.7
Seeking Stimulation		3.6		1.7
Experiencing excitement.			3.4	1.7
Experiencing exhilaration.			3.9	1.6
2. Leadership/Autonomy	3.1			1.6
Independence		3.4		1.7
Feeling your independence.			3.6	1.6
Being on your own.			3.2	1.7
Autonomy		2.7		1.7
Being your own boss.			2.7	1.7
Control Power		3.6		1.8
Being in control of things that happen.			3.6	1.8
Teaching-Sharing Skills		3.7		1.5
Sharing what you have learned with others.			3.7	1.5
Leading Others		2.1		1.3
Leading other people.			2.1	1.4
3. Risk Taking	2.8			1.1
Risk Taking		1.9		1.3
Chancing dangerous situations.			1.9	1.3
Risk Moderation		3.6		1.5
Being near others who could help you if you need them.			3.6	1.5
Risk Avoidance		2.9		1.5
Avoiding the unexpected.			2.9	1.5
4. Equipment	3.5			1.6
Equipment		3.5		1.6
Using your equipment.			3.5	1.6
5. Family Togetherness	4.9			1.4
Family Togetherness		4.9		1.4
Doing something with your family.			5.1	1.2
Bringing your family closer together.			4.6	1.6
6. Being with People	4.4			1.4
Being with Friends		4.2		1.5
Being with other members of your group.			4.0	1.5
Being with your friends.			4.4	1.4
Being with Similar People		4.6		1.3
Being with others who enjoy the same thing you do.			4.6	1.3
7. Meeting-Observing New People	3.0			1.6
Meeting New People		3.3		1.5
Meeting other people in the area.			3.3	1.5
Observing Other People		2.6		1.6
Observing other people in the area.			2.6	1.6
8. General Learning	3.9			1.4
General Learning		4.1		1.3
Developing your knowledge of things there.			4.1	1.3
Exploration		4.1		1.4
Experiencing new and different things.			4.3	1.3
Discovering something new.			4.0	1.4
Geography of Area		3.4		1.4
Learning about the topography of the land.			3.4	1.4
Learn About Nature		4.1		1.3
Learning more about nature.			4.1	1.3

Table B-2. Continued.

Recreation Experience Preferences Domain Scale Item	Total Sample Mean[a] D	S	I	S.D.[b]
9. Relationships with Nature	5.0			1.1
Scenery		5.1		1.0
Viewing the scenery.			5.2	1.0
Viewing the scenic beauty.			5.1	1.0
General Nature Experience		5.0		1.1
Being close to nature.			5.0	1.0
Enjoying the sounds and smells of nature.			5.0	1.1
10. Reflect on Personal Values	3.5			1.7
Spiritual		3.6		1.7
Developing personal spiritual values.			3.6	1.7
Introspection		3.4		1.7
Thinking about your personal values.			3.5	1.6
Thinking about who you are.			3.1	1.8
11. Creativity	3.1			1.4
Creativity		3.1		1.4
Being creative.			3.1	1.4
12. Nostalgia	3.8			1.5
Nostalgia		3.8		1.5
Thinking about good times you've had in the past.			3.8	1.5
13. Exercise/Physical Fitness	4.4			1.4
Exercise/Physical Fitness		4.4		1.4
Getting exercise.			4.4	1.3
Keeping physically fit.			4.4	1.5
14. Physical Rest	4.3			1.6
Physical Rest		4.3		1.6
Relaxing physically.			4.3	1.6
15. Escape Personal-Social Pressure	4.9			1.1
Tension Release		4.6		1.4
Releasing or reducing some built-up tensions.			4.6	1.4
Slow Down Mentally		4.7		1.3
Giving your mind a rest.			4.7	1.3
Escape Role Overloads		5.4		.7
Getting away from the usual demands of life.			5.4	.7
Escape Daily Routine		5.1		1.0
Having a change from your daily routine.			5.1	1.0
16. Escape Physical Pressure	4.2			1.4
Tranquility		4.4		1.4
Experiencing tranquility.			4.4	1.4
Experiencing solitude.			3.8	1.6
Experiencing peace and calm.			5.1	1.1
Seek Open Space		4.3		1.4
Experiencing open space.			4.3	1.4
Privacy		3.0		1.6
Feeling isolated.			3.0	1.5
Being alone.			2.9	1.7
Escape Crowds		4.6		1.2
Being away from crowds of people.			4.6	1.2
Escape Physical Stressors		4.6		1.4
Being away from noise back home.			4.6	1.4
17. Security	4.6			1.4
Social Security		4.6		1.4
Being near considerate people.			4.6	1.4
18. Escaping Family	1.9			1.4
Escaping Family		1.9		1.4
Being away from the family for awhile.			1.9	1.4
19. Temperature	3.8			1.5
Temperature		3.8		1.5
Having more agreeable temperatures.			3.8	1.5

[a]Means are based on responses to a six-point response format ranging from 6 (extremely important) to 1 (not important).

[b]Standard deviations for multiple-item scales are computed by averaging the standard deviations of the items within that scale. Standard deviations for multiple scale domains are computed by averaging the standard deviations of the scales within that domain.

Table B-3. Recreation experience preference domain (D), scale (S), and item (I) means for those respondents sampled at Bass Lake, Sierra N.F., using the "adds to - detracts from satisfaction" response format, grouped by their most important activity (Summer, 1979).

Recreation Experience Preferences Domain Scale Item	Boating (N=9)[a]				Camping Near Auto (N=13)[a]				Hikers (N=9)[a]				Swimmers (N=13)[a]				Waterskiers (N=14)[a]			
	Mean[b]			S.D.[c]	Mean[b]			S.D.[c]	Mean[b]			S.D.[c]	Mean[b]			S.D.[c]	Mean[b]			S.D.[c]
	D	S	I		D	S	I		D	S	I		D	S	I		D	S	I	
1. Achievement	1.7			1.6	1.2			1.7	1.8			1.7	1.9			1.7	2.3			1.5
Reinforcing Self Image		1.3		1.4		1.8		1.7		2.3		1.6		2.1		1.6		2.1		1.7
Gaining a sense of self-confidence.			6.3	1.4			6.7	1.7			7.3	1.6			7.1	1.6			7.1	1.7
Social Recognition		.8		2.3		.2		1.9		- .3		2.2		1.2		1.7		1.6		1.7
Showing others you can do it.			5.8	2.3			5.2	1.9			4.7	2.2			6.2	1.7			6.6	1.7
Skill Development		2.3		1.4		1.5		1.7		2.6		1.3		2.0		1.7		3.0		1.1
Becoming better at it.			7.8	1.2			7.1	1.6			7.6	1.3			7.3	1.7			8.1	1.2
Developing your skills and abilities.			6.9	1.5			5.7	1.9			7.4	1.3			7.0	1.8			7.8	1.1
Competence Testing		2.1		1.5		.9		1.2		1.7		2.1		1.9		1.8		2.5		1.3
Testing your abilities.			7.1	1.5			5.9	1.2			6.7	2.1			6.9	1.8			7.5	1.3
Seeking Stimulation		2.1		1.6		1.2		2.1		2.9		1.4		2.1		1.7		2.2		1.8
Experiencing excitement.			7.1	1.5			6.1	2.0			8.0	1.2			6.5	1.8			7.2	2.1
Experiencing feelings of exhilaration.			7.0	1.8			6.3	2.3			7.9	1.5			7.6	1.5			7.2	1.5
2. Leadership/Autonomy	1.2			1.2	1.3			1.4	1.4			1.7	1.8			1.6	1.3			1.7
Independence		1.3		1.3		1.5		1.3		2.7		1.4		2.4		1.8		.9		2.2
Feeling your independence.			7.0	1.2			6.7	1.3			8.3	1.1			7.4	1.8			6.6	2.0
Being on your own.			5.7	1.4			6.3	1.5			7.1	1.6			7.5	1.8			5.2	2.3
Autonomy		1.1		1.3		1.2		1.5		1.8		1.7		2.1		1.8		1.2		1.9
Being your own boss.			6.1	1.3			6.2	1.5			6.8	1.7			7.1	1.8			6.2	1.9
Control Power		1.0		2.0		1.7		1.3		.7		1.0		2.5		1.6		1.9		1.4
Being in control of things that happen.			6.0	2.0			6.7	1.3			5.7	1.0			7.5	1.6			6.9	1.4
Teaching-Sharing Skills		2.0		.9		1.5		2.1		1.2		2.5		1.7		1.4		2.2		1.5
Sharing what you have learned with others.			7.0	.9			6.5	2.1			6.2	2.5			6.7	1.4			7.2	1.5
Leading Others		.4		.7		.4		1.2		.6		2.1		.3		1.4		.5		1.3
Leading other people.			5.4	.7			5.4	1.2			5.6	2.1			5.3	1.4			5.5	1.3
3. Risk Taking	.9			2.1	1.5			1.9	.7			2.2	.9			1.8	.3			1.9
Risk Taking		-.1		2.5		-1.3		2.6		.4		2.8		-.6		2.3		-1.3		2.1
Chancing dangerous situations.			4.9	2.5			3.8	2.6			5.4	2.8			4.4	2.3			3.7	1.2
Risk Moderation		1.4		2.1		1.4		1.3		1.0		2.2		2.5		1.5		1.4		2.1
Being near others who could help you if you need them.			6.4	2.1			6.4	1.3			6.0	2.2			7.5	1.5			6.4	2.1
Risk Avoidance		1.2		1.6		.8		1.8		.6		1.5		.9		1.7		.8		1.4
Avoiding the unexpected.			6.2	1.6			5.9	1.8			5.6	1.5			5.9	1.7			5.8	1.4
4. Equipment	2.9			1.7	2.0			1.6	2.1			1.9	2.6			1.1	2.1			1.9
Equipment		2.9		1.7		2.0		1.6		2.1		1.9		2.6		1.1		2.1		1.9
Using your equipment.			7.9	1.7			7.0	1.6			7.1	1.9			7.6	1.1			7.1	1.9
5. Family Togetherness	3.0			1.1	3.1			1.3	1.7			1.7	2.6			1.1	3.0			1.5
Family Togetherness		3.0		1.1		3.1		1.3		1.7		1.7		2.6		1.1		3.0		1.5
Doing something with your family.			8.2	1.1			8.3	1.0			7.3	1.6			8.8	.4			8.2	1.5
Bringing your family closer together.			7.8	1.1			7.8	1.6			6.1	1.8			8.5	.9			7.9	1.6

Table B-3. Continued.

Recreation Experience Preferences Domain Scale Item	Boating (N=9)[a]				Camping Near Auto (N=13)[a]				Hikers (N=9)[a]				Swimmers (N=13)[a]				Waterskiers (N=14)[a]			
	Mean[b]			S.D.[c]	Mean[b]			S.D.[c]	Mean[b]			S.D.[c]	Mean[b]			S.D.[c]	Mean[b]			S.D.[c]
	D	S	I		D	S	I		D	S	I		D	S	I		D	S	I	
6. Being with People	2.8			1.2	2.8			1.2	2.8			1.7	3.2			1.3	3.0			1.1
Being with Friends		2.5		1.4		2.5		1.3		2.5		1.8		3.0		1.4		2.7		1.5
Being with other members of your group.			6.1	1.3			6.2	1.5			6.8	1.7			7.1	1.8			6.2	1.9
Being with friends.			7.6	1.3			7.6	1.3			7.7	1.7			8.1	1.3			8.0	1.3
Being with Similar People		3.0		1.0		3.2		1.0		3.0		1.5		3.5		1.1		3.4		.7
Being with others who enjoy the same thing you do.			8.0	1.0			8.2	1.0			8.0	1.5			8.5	1.1			8.4	.7
7. Meeting-Observing New People	1.6			1.4	1.5			1.3	.4			2.5	1.6			1.8	1.6			2.0
Meeting New People		1.8		1.3		1.8		1.3		1.0		2.4		2.2		1.4		1.9		2.0
Meeting other people in the area.			6.8	1.3			6.8	1.3			6.0	2.5			7.2	1.4			6.9	2.0
Observing Other People		1.3		1.6		1.2		1.3		- .2		2.5		1.1		2.3		1.4		2.1
Observing other people in the area.			6.3	1.6			6.2	1.3			4.8	2.5			6.1	2.3			6.4	2.1
8. General Learning	1.0			1.3	2.0			1.2	2.5			1.6	2.5			1.6	1.3			1.5
General Learning		1.0		1.3		2.3		1.0		2.9		1.1		2.5		1.5		1.2		1.5
Developing your knowledge of things there.			6.0	1.3			7.3	1.0			7.9	1.1			7.5	1.5			6.2	1.5
Exploration		1.6		.9		2.2		1.2		2.9		1.3		2.7		1.6		2.0		1.2
Experiencing new and different things.			7.0	.9			7.3	1.1			8.2	1.1			7.8	1.6			7.6	1.1
Discovering something new.			6.2	1.0			7.0	1.2			7.7	1.5			7.5	1.6			6.4	1.3
Geography of Area		.2		1.4		1.6		1.4		1.8		1.5		2.4		1.8		.5		1.8
Learning about the topography of the land.			5.2	1.4			6.6	1.4			6.8	1.5			7.4	1.8			5.5	1.8
Learn About Nature		1.1		1.5		2.0		1.3		2.4		2.6		2.4		1.6		1.6		1.6
Learning more about nature.			6.1	1.5			7.0	1.3			7.4	2.6			7.4	1.6			6.6	1.6
9. Relationships with Nature	2.5			1.4	3.4			.8	3.6			.5	3.4			.9	2.8			1.1
Scenery		2.6		1.3		3.5		.7		3.7		.5		3.4		.9		3.0		1.1
Viewing the scenery.			7.2	1.3			8.4	.8			8.7	.5			8.5	.9			8.1	1.0
Viewing the scenic beauty.			7.9	1.3			8.5	.7			8.8	.4			8.4	1.0			7.9	1.1
General Nature Experience		2.4		1.5		3.3		.8		3.5		.5		3.5		.9		2.6		1.2
Being close to nature.			7.4	1.6			8.4	.9			8.2	1.0			8.5	.8			7.4	1.3
Enjoying the sounds and smells of nature.			7.4	1.5			8.3	.8			8.8	.4			8.4	1.0			7.9	1.0
10. Reflect on Personal Values	1.1			1.7	1.7			1.2	1.9			1.2	3.4			.9	2.8			1.1
Spiritual		.9		1.4		2.2		1.4		2.4		.9		3.4		.9		3.0		1.1
Developing personal spiritual values.			5.9	1.4			7.2	1.4			7.4	1.9			8.3	1.4			6.6	2.1
Introspection		1.3		1.9		1.2		1.1		1.3		1.5		3.5		.9		2.6		1.2
Thinking about your personal values.			6.6	1.7			6.3	1.1			6.9	1.4			7.8	1.5			6.6	1.6
Thinking about who you are.			6.0	2.1			6.1	1.1			5.7	1.6			7.3	1.8			6.2	1.7
11. Creativity	1.1			.9	1.5			1.2	2.0			1.4	1.8			1.8	.9			1.7
Creativity		1.1		.9		1.5		1.2		2.0		1.4		1.8		1.8		.9		1.7
Being creative.			6.1	.9			6.5	1.2			7.0	1.4			6.9	1.8			5.9	1.7
12. Nostalgia	2.4			1.7	2.7			1.7	1.9			1.5	2.8			1.4	2.7			1.5
Nostalgia		2.4		1.7		2.7		1.7		1.9		1.5		2.8		1.4		2.7		1.5
Thinking about good times you've had in the past.			7.4	1.7			7.7	1.7			6.9	1.5			7.8	1.4			7.7	1.5

Table B-3. Continued.

Recreation Experience Preferences Domain Scale Item	Boating (N=9)[a] Mean[b] D	S	I	S.D.[c]	Camping Near Auto (N=13)[a] Mean[b] D	S	I	S.D.[c]	Hikers (N=9)[a] Mean[b] D	S	I	S.D.[c]	Swimmers (N=13)[a] Mean[b] D	S	I	S.D.[c]	Waterskiers (N=14)[a] Mean[b] D	S	I	S.D.[c]
13. Exercise/Physical Fitness	2.0			1.3	2.0			1.2	2.3			2.2	2.9			1.3	3.1			1.0
Exercise/Physical Fitness		2.0		1.3		2.0		1.2		2.3		2.2		2.9		1.3		3.1		1.0
Getting exercise.			7.4	1.2			6.9	1.4			7.8	1.7			8.3	1.1			8.4	.8
Keeping physically fit.			6.6	1.4			7.2	1.1			6.8	2.6			7.8	1.4			7.9	1.2
14. Physical Rest	2.6			1.4	3.2			1.0	1.8			2.2	3.2			1.5	3.1			1.0
Physical Rest		2.6		1.4		3.2		1.0		1.8		2.2		3.2		1.5		3.1		1.0
Relaxing physically.			7.6	1.4			8.2	1.0			6.8	2.2			8.2	1.5			6.6	2.3
15. Escape Personal-Social Pressure	3.2			.8	3.2			.9	3.3			.9	3.3			1.0	3.1			1.4
Tension Release		3.3		.7		3.0		1.0		2.9		1.1		3.0		1.3		2.9		1.2
Releasing or reducing some built up tensions.			8.3	.7			8.0	1.1			7.9	1.1			8.0	1.3			7.9	1.2
Slow Down Mentally		2.7		1.2		3.0		1.0		3.1		1.3		2.8		1.0		2.9		1.4
Giving your mind a rest.			7.7	1.2			8.0	1.1			8.1	1.3			7.8	1.0			7.9	1.4
Escape Role Overloads.		3.6		.7		3.5		.7		3.6		.5		3.6		.8		3.2		1.0
Getting away from the usual demands of life.			8.6	.7			8.5	.7			8.6	.5			8.6	.8			8.2	1.0
Escape Daily Routine		3.5		.5		3.3		.8		3.4		.5		3.7		.8		3.2		1.9
Having a change from your daily routine.			8.5	.5			8.3	.8			8.4	.5			8.7	.8			8.2	.9
16. Escape Physical Pressure	1.4			1.7	2.1			1.7	2.7			1.5	2.5			1.6	2.1			1.6
Tranquility		1.5		1.4		2.8		1.2		2.9		1.2		3.1		1.2		1.8		1.5
Experiencing tranquility.			6.8	1.3			8.2	.8			7.7	1.5			8.2	1.1			7.1	1.5
Experiencing solitude.			5.7	1.5			6.3	2.2			7.6	1.5			7.3	1.7			5.9	2.8
Experiencing peace and calm.			7.1	1.4			8.6	.7			8.6	.7			8.6	.8			7.4	1.5
Seek Open Space		2.1		1.5		2.2		1.4		2.8		1.8		2.8		1.7		2.4		1.3
Experiencing open space.			7.1	1.5			7.2	1.4			7.8	1.8			7.8	1.7			7.4	1.3
Privacy		.4		1.8		.5		2.2		1.8		1.9		1.0		2.1		.3		2.8
Feeling isolated.			5.4	2.0		.	5.9	2.3			7.0	2.1			5.8	2.5			5.2	2.8
Being alone.			5.3	1.6			5.3	2.1			6.6	1.7			6.2	1.8			5.3	2.8
Escape Crowds		1.1		2.0		2.6		1.6		3.7		.7		2.8		1.6		3.0		1.2
Being away from crowds of people.			6.1	2.0			7.6	1.6			8.7	.7			7.8	1.6			8.0	1.2
Escape Physical Stressors		1.8		1.6		2.2		2.2		2.4		1.7		3.0		1.5		2.9		1.2
Being away from noise back home.			6.8	1.6			7.2	2.2			7.4	1.7			8.0	1.5			7.9	1.2
17. Security	1.4			2.1	3.0			1.6	2.6			1.4	3.3			1.3	2.9			1.2
Social Security		1.4		2.1		3.0		1.6		2.6		1.4		3.3		1.3		2.9		1.2
Being near considerate people.			6.4	2.1			8.0	1.6			7.6	1.4			8.3	1.3			7.9	1.2
18. Escaping Family	- .6			1.7	- .4			2.0	1.1			1.6	- .9			2.0	- .4			2.4
Escaping Family		- .6		1.7		- .4		2.0		1.1		1.6		- .9		2.0		- .4		2.4
Being away from the family for awhile.			4.4	1.7			4.6	2.0			6.1	1.6			4.1	2.0			4.6	2.4
19. Temperature	1.3			1.3	1.8			1.5	2.0			1.8	2.5			2.0	2.4			1.5
Temperature		1.3		1.3		1.8		1.5		2.0		1.8		2.5		2.0		2.4		1.5
Having more agreeable temperatures.			6.3	1.3			6.8	1.5			7.0	1.8			7.5	2.0			7.4	1.5

[a]Calculations for each domain, scale, and item are based on at least the number of respondents indicated by N.

[b]Means are based on responses to a nine-point response format ranging from +4 (very strongly adds) to -4 (very strongly detracts).

[c]Standard deviations for multiple-item scales are computed by averaging the standard deviations of the items within that scale. Standard deviations for multiple scale domains are computed by averaging the standard deviations of the scales within that domain.

Table B-4. Recreation experience preference domain (D), scale (S), and item (I) means for those respondents sampled at Bass Lake, Sierra N.F., using the "importance rating" response format, grouped by their most important activity (Summer, 1979).

Recreation Experience Preferences Domain Scale Item	Swimming (N=12) Mean[a] D	S	I	S.D.[b]	Waterskiing (N=17) Mean[a] D	S	I	S.D.[b]	Camping Near Auto (N=14) Mean[a] D	S	I	S.D.[b]
1. Achievement	3.1			1.6	3.7			1.6	3.6			1.8
Reinforcing Self Image		3.5		1.9		3.6		1.6		4.0		2.0
Gaining a sense of self confidence.			3.5	1.9			3.6	1.6			4.0	2.0
Social Recognition		2.1		1.4		2.6		1.9		2.9		1.9
Showing others you can do it.			2.1	1.4			2.6	1.9			2.9	1.9
Skill Development		3.3		1.6		4.2		1.6		3.6		1.7
Becoming better at it.			3.4	1.8			4.4	1.6			3.7	1.7
Developing your skills and abilities.			3.2	1.5			4.0	1.5			3.5	1.7
Competence Testing		3.5		1.8		4.2		1.6		3.7		1.6
Testing your abilities.			3.5	1.8			4.2	1.6			3.7	1.6
Seeking Stimulation		3.0		1.5		3.9		1.7		4.0		1.6
Experiencing excitement.			2.6	1.7			3.8	1.6			3.7	1.7
Experiencing feelings of exhilaration.			3.5	1.3			4.0	1.8			4.3	1.4
2. Leadership/Autonomy	3.1			1.5	3.0			1.6	3.4			1.7
Independence		3.2		1.8		3.1		1.7		3.7		1.7
Feeling your independence.			3.5	1.7			3.4	1.5			4.4	1.6
Being on your own.			3.0	1.8			2.8	1.8			3.0	1.7
Autonomy		2.8		1.8		2.7		1.7		3.4		2.0
Being your own boss.			2.8	1.8			2.7	1.7			3.4	2.0
Control Power		3.6		1.8		3.6		1.8		3.9		1.9
Being in control of things that happen.			3.6	1.8			3.6	1.8			3.9	1.9
Teaching-Sharing Skills		4.2		1.1		3.7		1.6		4.0		1.5
Sharing what you have learned with others.			4.2	1.1			3.6	1.6			4.0	1.5
Leading Others		1.8		.8		2.0		1.1		2.1		1.3
Leading other people.			1.8	.8			2.0	1.1			2.1	1.3
3. Risk Taking	2.7			1.1	3.1			1.6	3.3			1.3
Risk Taking		1.2		.4		2.2		1.3		2.0		1.1
Chancing dangerous situations.			1.2	.4			2.2	1.3			2.0	1.1
Risk Moderation		3.8		1.3		4.0		1.6		4.0		1.3
Being near others who could help you if you need them.			3.8	1.3			4.0	1.6			4.0	1.3
Risk Avoidance		2.9		1.6		2.9		1.8		3.8		1.4
Avoiding the unexpected.			2.9	1.6			2.9	1.8			3.8	1.4
4. Equipment	2.3			1.6	4.4.			1.1	3.6			1.6
Equipment		2.3		1.6		4.4		1.1		3.6		1.6
Using your equipment			2.3	1.6			4.4	1.1			3.6	1.6
5. Family Togetherness	4.8			1.5	4.8			1.5	5.6			.8
Family Togetherness		4.8		1.5		4.8		1.5		5.6		.8
Doing something with your family.			5.1	1.2			5.1	1.4			5.7	.5
Bringing your family closer together.			4.5	1.8			4.5	1.5			5.4	1.1
6. Being with People	3.6			1.5	4.8			1.1	4.6			1.5
Being with Friends		3.9		1.5		4.7		1.2		4.4		1.5
Being with other members of your group.			4.1	1.5			4.3	1.5			4.2	1.6
Being with friends.			3.6	1.5			5.0	1.0			4.5	1.4
Being with Similar People		3.3		1.7		5.0		1.0		4.7		1.1
Being with others who enjoy the same things you do.			3.3	1.7			5.0	1.0			4.7	1.1

Table B-4. Continued.

Recreation Experience Preferences Domain Scale Item	Swimming (N=12) Mean[a] D	S	I	S.D.[b]	Waterskiing (N=17) Mean[a] D	S	I	S.D.[b]	Camping Near Auto (N=14) Mean[a] D	S	I	S.D.[b]
7. Meeting-Observing New People	2.7			1.3	3.5			1.7	2.9			1.5
Meeting New People		3.0		1.2		3.9		1.6		3.0		1.5
Meeting other people in the area.			3.0	1.2			3.9	1.6			3.0	1.5
Observing Other People		2.5		1.4		3.1		1.8		2.7		1.4
Observing other people in the area.			2.5	1.4			3.1	1.8			2.7	1.4
8. General Learning	4.1			1.3	3.8			1.4	4.2			1.1
General Learning		4.3		1.3		3.7		1.3		4.5		.9
Developing your knowledge of things there.			4.3	1.3			3.7	1.3			4.5	.9
Exploration		4.3		1.4		4.5		1.2		4.2		1.1
Experiencing new and different things.			4.4	1.2			4.8	1.0			4.4	1.0
Discovering something new.			4.2	1.6			4.2	1.4			4.2	1.2
Geography of Area		3.3		1.3		3.1		1.5		3.6		1.1
Learning about the topography of the land.			3.3	1.3			3.1	1.5			3.6	1.1
Learn About Nature		4.3		1.3		4.1		1.4		4.3		1.3
Learning more about nature.			4.3	1.3			4.1	1.4			4.3	1.3
9. Relationships with Nature	5.0			1.1	4.9			1.1	5.2			.8
Scenery		5.0		.9		4.9		1.1		5.4		.7
Viewing the scenery.			5.0	.9			4.9	1.1			5.4	.8
Viewing the scenic beauty.			5.0	1.0			4.9	1.2			5.3	.6
General Nature Experience		5.0		1.2		5.0		1.1		5.1		.9
Being close to nature.			5.1	.9			5.1	1.1			5.1	.9
Enjoying the sounds and smells of nature.			5.0	1.4			4.9	1.2			5.3	.7
10. Reflect on Personal Values	3.7			1.9	3.6			1.7	3.9			1.8
Spiritual		3.3		1.7		3.8		1.6		4.4		1.7
Developing personal spiritual values.			3.3	1.7			3.8	1.6			4.4	1.7
Introspective		3.9		2.0		3.3		1.7		3.5		1.8
Thinking about your personal values.			4.0	1.9			3.5	1.5			3.7	1.9
Thinking about who you are.			3.7	2.0			3.1	1.9			3.3	1.8
11. Creativity	3.1			1.3	3.6			1.3	3.9			1.5
Creativty		3.1		1.3		3.6		1.3		3.9		1.5
Being creative.			3.1	1.3			3.6	1.3			3.9	1.5
12. Nostalgia	2.9			1.7	3.9			1.3	3.9			1.5
Nostalgia		2.9		1.7		3.9		1.3		3.9		1.5
Thinking about good times you've had in the past.			2.9	1.7			3.9	1.3			3.9	1.5
13. Exercise/Physical Fitness	4.2			1.4	4.7			1.1	4.4			1.3
Exercise/Physical Fitness		4.2		1.5		4.7		1.3		4.4		1.3
Getting exercise.			4.5	1.2			4.5	1.3			4.3	1.0
Keeping physically fit.			3.9	1.7			4.9	1.2			4.5	1.6
14. Physical Rest	4.2			1.8	4.2			1.6	4.9			1.1
Physical Rest		4.2		1.8		4.2		1.6		4.9		1.1
Relaxing physically.			4.2	1.8			4.2	1.6			4.9	1.1

Table B-4. Continued.

Recreation Experience Preferences Domain Scale Item	Swimming (N=12) Mean[a] D	S	I	S.D.[b]	Waterskiing (N=17) Mean[a] D	S	I	S.D.[b]	Camping Near Auto (N=14) Mean[a] D	S	I	S.D.[b]
15. Escaping Personal-Social Pressure	4.7			1.1	4.9			1.2	5.3			.7
Tension Release		4.5		1.5		4.6		1.5		5.2		.8
Releasing or reducing some built-up tensions.			4.5	1.5			4.6	1.5			5.2	.8
Slow Down Mentally		4.3		1.2		4.6		1.3		5.2		.7
Giving your mind a rest.			4.3	1.2			4.6	1.3			5.2	.7
Escape Role Overloads		5.6		.5		5.4		.7		5.6		.6
Getting away from the usual demands of life.			5.6	.5			5.4	.7			5.6	.6
Escape Daily Routine		4.4		1.2		5.1		1.2		5.4		.8
Having a change from your daily routine.			4.4	1.2			5.1	1.2			5.4	.8
16. Escape Physical Pressure	4.1			1.4	4.2			1.1	4.1			1.3
Tranquility		4.5		1.3		4.4		1.3		4.4		1.2
Experiencing tranquility.			4.4	1.4			4.2	1.4			4.9	1.2
Experiencing solitude.			4.0	1.5			3.8	1.6			3.5	1.8
Experiencing peace and calm.			5.0	1.0			5.2	1.0			5.1	.9
Seek Open Space		4.7		1.3		4.4		1.7		4.4		1.4
Experiencing open space.			4.7	1.3			4.4	1.7			4.4	1.4
Privacy		2.8		1.9		2.8		1.5		2.5		1.4
Feeling isolated.			2.5	1.6			3.4	1.4			2.7	1.4
Being alone.			3.1	2.1			2.3	1.6			2.3	1.3
Escape Crowds		4.3		1.2		4.6		1.0		4.9		1.1
Being away from crowds of people.			4.3	1.2			4.7	1.0			4.9	1.1
Escape Physical Stressors		4.4		1.5		4.8		1.5		4.4		1.4
Being away from noise back home.			4.4	1.5			4.8	1.5			4.4	1.4
17. Security	4.5			1.3	4.8			1.1	5.4			1.0
Social Security		4.5		1.3		4.8		1.1		5.4		1.0
Being near considerate people.			4.5	1.3			4.8	1.1			5.4	1.0
18. Escaping Family	1.5			1.2	1.9			1.4	1.9			1.3
Escaping Family		1.5		1.2		1.9		1.4		1.9		1.3
Being away from the family for awhile.			1.5	1.2			1.9	1.4			1.9	1.3
19. Temperature	3.4			1.5	4.5			1.2	3.7			1.8
Temperature		3.4		1.5		4.5		1.2		3.7		1.8
Having more agreeable temperatures.			3.4	1.5			4.5	1.2			3.7	1.8

[a]Means are based on responses to a six-point response format ranging from 6 (extremely important) to 1 (not important).

[b]Standard deviations for multiple-item scales are computed by averaging the standard deviations of the items within that scale. Standard deviations for multiple-scale domains are computed by averaging the standard deviations of the scales within that domain.